TOOLS FOR ENGINEERS & WOODWORKERS

CHARLES Churchill & CO. LTD

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FOR ENGINEERS AND WOODWORKERS

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CHARLES Churchill & CO., LTD.

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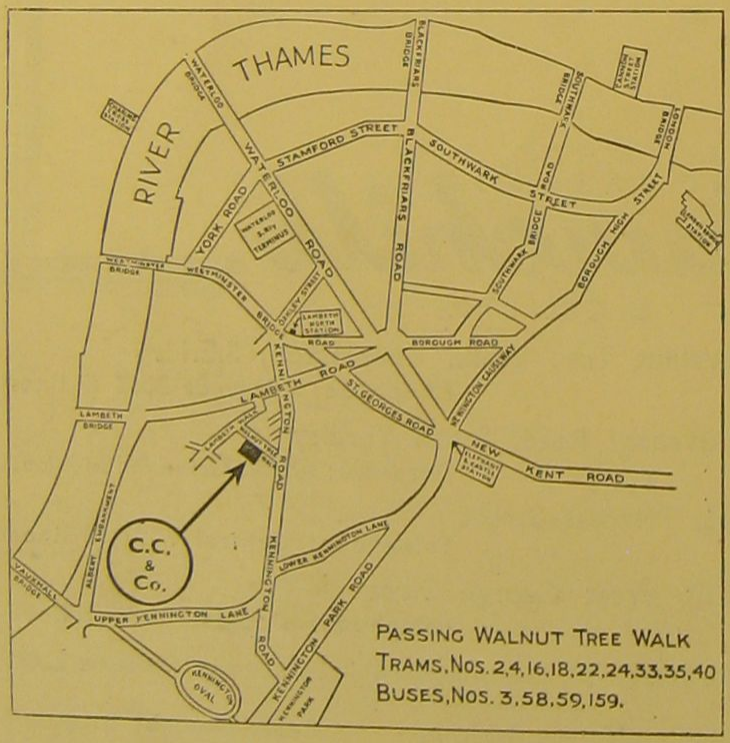

Foreword

IN this revised edition of our Small Tools Catalogue we have endeavoured to present a complete range of Mechanics' Fine Tools and Workshop Accessories and a large variety of Carpenters' Tools.

Every care has been taken to make it as accurate and up-to-date as possible, but as improvements and changes are constantly taking place, the descriptions and illustrations may not in all cases agree with the goods supplied.

We will, however, always be pleased to send current information, and, when necessary, supply original catalogues of makers whom we represent.

. . . Foreword

This Catalogue cancels all previous editions or lists showing the goods herein described.

STOCK AND SERVICE

For the convenience of our customers we carry large stocks of tools in our London and Branch Houses, and our organisation is such that utmost service can be given. Goods capable of ready despatch can be in customers' possession within 24 hours of receipt of order, irrespective of the part of the country from which the order emanated.

DELIVERY VAN SERVICE is in operation in all the Chief Depots, and enables us to make local deliveries the same day as order is received.

MERCHANDISE MARKS ACTS (Imported Goods)

Certain goods described in this catalogue are of foreign manufacture. An indication is given on the various pages against the imported articles shown which belong to any such class or description.

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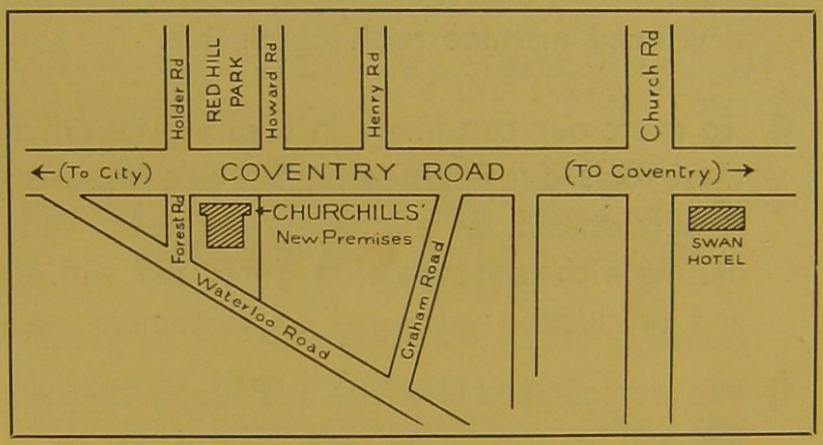

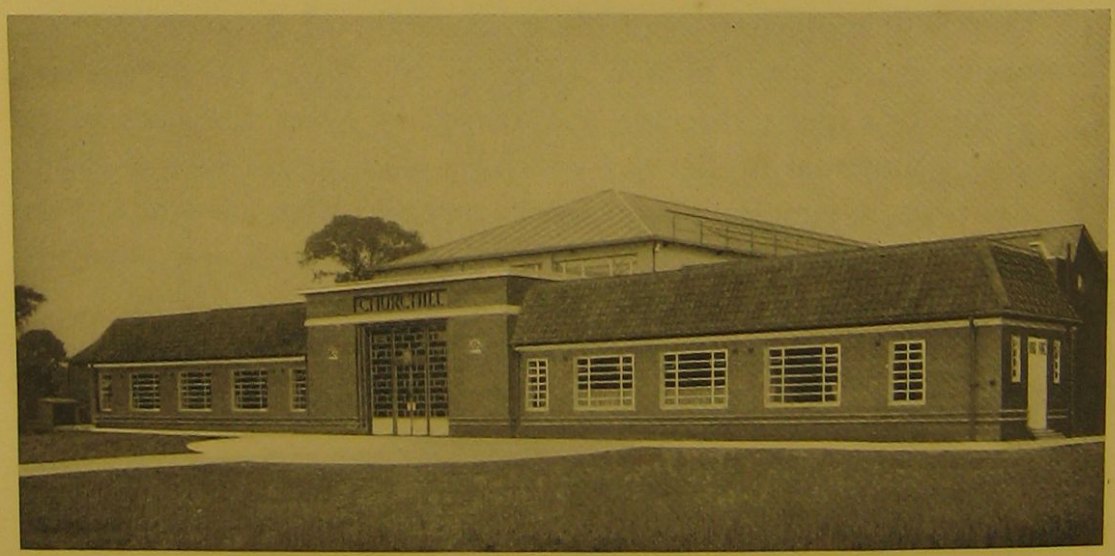

CHARLES CHURCHILL & CO. LTD., premises at COVENTRY ROAD, SOUTH YARDLEY, BIRMINGHAM.

Engineering Service Department

•

MACHINE TOOL SECTION

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¶ The requirements for quantity production and modern engineering practice insistently demand the use of the most highly developed machine tools obtainable.

¶ To assist our customers in securing maximum production from these tools, our **Engineering Service Department** in Birmingham is fully staffed by competent engineers and trained specialists dealing with each type of machine, and will prepare time studies and production estimates on customers' actual work subjects.

¶ We are equipped to design and supply special tooling equipment, jigs, and fixtures for all types of machine tools which we handle.

¶ **The services of this Department are at your disposal.** You will appreciate that the preparation of a good estimate requires the same careful study as the design of an efficient fixture or a special machine, and, therefore, when taking advantage of this **Engineering Service** which we offer, please submit either drawings or samples of your work, together with full information regarding material, stock removal, finish required, and sequence of previous operations and production desired.

CHARLES CHURCHILL & CO., LTD.

Engineering Service Department

BIRMINGHAM

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Section 1

Chucks, Vices and Holding Devices

Lathe and Drill Chucks, Magnetic, Electric and Air-Operated Chucks

Bench Vices

Machine Vices

Pipe Vices

Quick-change Drilling and Tapping Devices

Clamps

Angle Plates

Vee Blocks

Lathe Dogs

Mandrels

Lathe Centres

HANDY REFERENCE TABLES and other USEFUL DATA will be found on the end pages of this Catalogue

INDEPENDENT CHUCKS

Cushman "Incomparable" Iron Independent Chuck, Style 14
Heavy Pattern, with Hardened Steel Thrust Bearings (Made in U.S.A.)

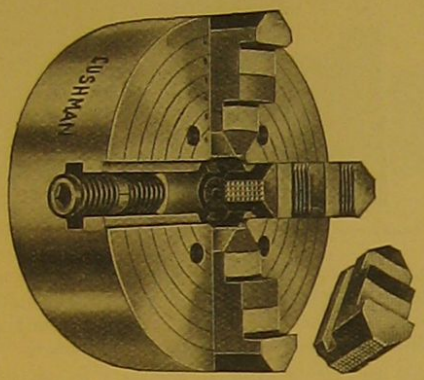
Cushman "Incomparable" Independent Type Chucks have been designed to replace the older styles. They are of guaranteed material and workmanship, and include a number of new features enabling them to give exceptionally long service.

The bodies are of cast iron and, being trussed, are practically unbreakable.

Reversible steel jaws, hardened all over and ground to gauges, are perfectly aligned with the body ribs. Jaws are interchangeable.

The screws are of chrome nickel steel, hardened, self-cleaning, and threaded their entire length.

Hardened thrust bearings are self-aligning and of new and improved design.



Size Diam. Ins.	Diam. of Face-plate Recess Ins.	Diam. of Hole Ins.	Depth of Chuck Body Ins.	Height of Jaws Ins.	Approx. Weight Lbs.	Price each	Extra 1 Piece Jaws Per Set of 4	Extra Blank Jaws Per Set	Extra Screws Each	Extra Keys Each
4½	4·118	1	2¼	⅞	8	£9 10 10	£4 3 4	£3 2 6	£0 10 5	£0 5 3
6	5·618	1 1/16	2¼	1 1/16	14	10 0 0	5 0 0	3 15 0	0 11 6	0 5 3
8	4·715	2	3 3/32	1⅛	30	11 13 4	6 13 4	5 0 0	0 14 7	0 8 4
10	5·618	2½	3 3/32	1 3/32	42	14 15 10	7 10 0	5 12 6	0 16 8	0 10 5
12	6·666	3	3 3/32	1 3/32	70	17 10 0	7 10 0	5 12 6	0 18 9	0 10 5
14	6·666	3	3 3/32	1 3/32	90	19 3 4	9 7 6	7 0 8	1 0 10	0 10 5
16	7·799	3½	3 3/32	1 3/32	120	22 10 0	9 7 6	7 0 8	1 2 11	0 10 5
18	9·509	4	4 5/32	2 3/32	160	29 3 4	15 0 0	11 5 0	1 7 1	0 14 7
20	9·509	4	4 5/32	2 3/32	200	33 10 10	15 0 0	11 5 0	1 9 2	0 14 7
22	11·012	4½	4 5/32	2 3/32	240	38 15 0	15 0 0	11 5 0	1 13 4	0 14 7
24	11·012	5	4 5/32	2 3/32	285	43 10 10	15 0 0	11 5 0	1 15 5	0 14 7
26	12·00	5	4 5/32	2 3/32	310	48 15 0	15 0 0	11 5 0	1 17 6	0 14 7
28	13·005	5	4 5/32	2 3/32	355	55 8 4	15 0 0	11 5 0	2 1 8	0 14 7
30	15·025	6	4 5/32	3 5/32	440	68 15 0	21 17 6	16 8 2	2 6 11	1 13 4
36	17·740	6	4 5/32	3 5/32	600	100 0 0	21 17 6	16 8 2	3 19 2	1 13 4

Cushman "Incomparable" All-Steel Independent Chuck, Style 214
Heavy Pattern, with Hardened Steel Thrust Bearings

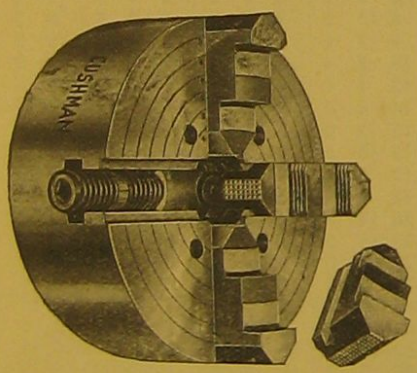
Cushman "Incomparable" All-Steel Independent Chucks include a number of new features enabling them to give exceptionally long service.

The steel bodies being trussed are very strong.

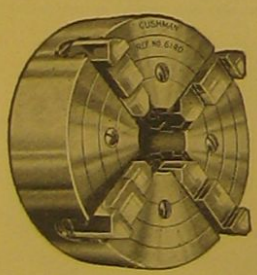
Reversible steel jaws, hardened all over and ground to gauges, are perfectly aligned with the body ribs. Jaws are interchangeable.

The screws are of chrome nickel steel, hardened, and self-cleaning.

Hardened thrust bearings are self-aligning, of new and improved design.



Size Diam. Ins.	Diam. of Face-plate Recess Ins.	Diam. of Hole Ins.	Depth of Chuck Body Ins.	Height of Jaws Ins.	Approx. Weight Lbs.	Price Each	Extra 1 Piece Jaws Per Set of 4	Extra Blank Jaws Per Set	Extra Screws Each	Extra Keys Each
8	4·175	2	3 3/32	1⅛	30	£19 3 4	£6 13 4	£5 0 0	£0 14 7	£0 8 4
10	5·618	2½	3 3/32	1 3/32	42	22 10 0	7 10 0	5 12 6	0 16 8	0 10 5
12	6·666	3	3 3/32	1 3/32	70	28 10 10	7 10 0	5 12 6	0 18 9	0 10 5
14	6·666	3	3 3/32	1 3/32	90	32 10 0	9 7 6	7 0 8	1 0 10	0 10 5
16	7·799	3½	3 3/32	1 3/32	120	36 13 4	9 7 6	7 0 8	1 2 11	0 10 5
18	9·509	4	4 5/32	2 3/32	160	44 3 4	15 0 0	11 5 0	1 7 1	0 14 7
20	9·509	4	4 5/32	2 3/32	200	51 0 10	15 0 0	11 5 0	1 9 2	0 14 7
22	11·012	4½	4 5/32	2 3/32	240	56 13 4	15 0 0	11 5 0	1 13 4	0 14 7
24	11·012	5	4 5/32	2 3/32	285	63 15 0	15 0 0	11 5 0	1 15 5	0 14 7
26	12·00	5	4 5/32	2 3/32	310	72 18 4	15 0 0	11 5 0	1 17 6	0 14 7
28	13·005	5	4 5/32	2 3/32	355	86 13 4	15 0 0	11 5 0	2 1 8	0 14 7
30	15·025	6	4 5/32	3 5/32	440	101 5 0	21 17 6	16 8 2	2 6 11	1 13 4
36	17·740	6	4 5/32	3 5/32	600	154 3 4	21 17 6	16 8 2	3 19 2	1 13 4



Cushman New Light Weight "Incomparable" Junior" Independent 4-Jaw Chuck No. 140 (Made in U.S.A.)

A new model Independent Chuck with reversible jaws embodying all the excellent Cushman features and very **suitable for bench lathe use. The chuck body is of semi-steel.**

Graduated reading lines are located on the face.

Thrust bearings are of case-hardened carbon steel, and each of the four operating screws operates in one of these well designed patented two-piece bearings.

The screws are threaded their whole length with square-cut threads and are self-cleaning when used in the "Incomparable" thrust bearings.

Specification:—

Diam. of Chuck, 6 ins.: Diam. of Centre Hole, 1 5/16 ins.; Diam. of Back Plate recess, 2·812 ins. Net weight, approx., 11½ lbs.

Price:—

No. 140. 6 in. Chuck with Reversible Jaws, £5 16 8. Extra Sets of 4 Jaws, £2 18 4. Screws, 9/5 each. Thrust Bearings, 2/1 each. Wrenches, 5/3 each.

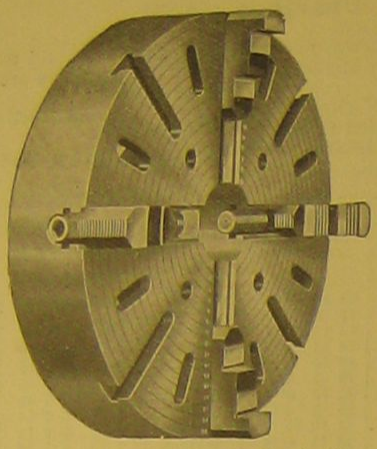
INDEPENDENT CHUCKS

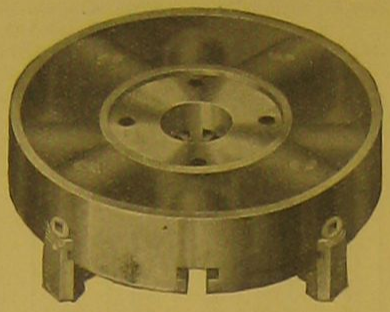
"Pratt" 4-Jaw Independent Chucks (with Reversible Jaws)

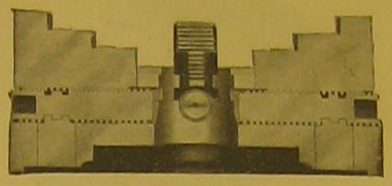
(British Made)

For Heavy Duty

No. 55.—4-JAW INDEPENDENT, CAST-IRON BODY.
No. 57.—4-JAW INDEPENDENT, ALL-STEEL BODY.







The body of the Chuck, Style No. 55, is made of cast iron, absolutely clean and sound; massive in construction and especially designed to give great strength. In fact, a chuck well adapted for all general purposes. For rougher work, entailing extraordinary strains or exceedingly heavy loads, the unbreakable All-steel Body Chuck, Style No. 57, is recommended.

The Jaws are case-hardened steel, in one piece, and reversible. Being ground on each step, dead accuracy is ensured in setting work.

The Screws have square threads cut from end to end, and all sizes over 9 ins. diam. have double thrust hardened steel bearings.

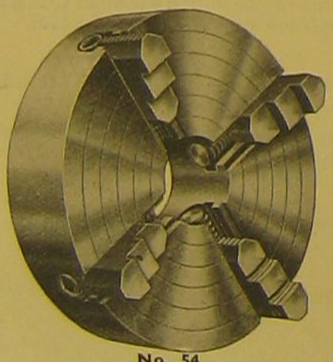
Each Chuck is supplied with wrench and bolts for attaching the Chuck to the back-plate.

Diam. of Chuck Ins.	Jaws will grip in Diam. about Ins.	Diam. of Hole in Body Ins.	Width of Body Ins.	Diam. of Recess for Back-plate Ins.	Approx. Weight Lbs.	No. 55, Price	No. 57, Price	Jaws, Set of Four, for No. 55	Screws, Each, for No. 55	Handle or Wrench, for No. 55
4	5	1	2	4⅛	8	£4 3 4	—	£1 15 0	£0 5 8	£0 4 2
5	5½	1	2	4⅛	10	4 7 6	—	1 15 0	0 5 10	0 4 2
6	6½	1 9/16	2¼	5	16	4 11 8	£8 5 0	2 0 8	0 6 0	0 4 2
8	8½	1¾	3⅛	4¾	36	5 8 4	8 15 0	2 10 0	0 6 8	0 5 0
9	9½	1⅞	3⅛	4¾	41	5 16 8	9 17 6	2 10 0	0 6 10	0 5 0
10	10½	2	3⅜	6¼	57	6 5 0	10 8 4	3 2 4	0 7 1	0 5 7
12	12½	2¾	3½	6 11/16	76	7 5 10	12 1 8	4 3 4	0 7 3	0 6 3
14	14½	3	3½	6 11/16	95	8 6 8	14 0 0	4 3 4	0 7 11	0 7 0
15	15½	3	3 11/16	9½	114	8 19 2	15 5 0	5 0 0	0 9 2	0 8 0
16	17	3	3 11/16	9½	127	9 11 8	15 18 6	5 0 0	0 10 5	0 8 0
17	18	4	4	9½	150	10 12 0	17 8 6	6 5 0	0 13 0	0 10 5
18	19	4	4	9½	172	11 5 0	18 3 6	6 5 0	0 13 4	0 10 5
20	21	4	4½	9½	198	12 18 4	20 17 6	6 5 0	0 13 9	0 10 5
22	23	5	4½	11	242	14 11 8	23 15 0	6 13 4	0 15 6	0 11 9
24	25	5	4½	11	320	16 13 4	27 0 0	6 13 4	0 16 8	0 11 9
26	28	5½	5	15	401	19 7 6	34 10 0	8 14 8	0 19 0	0 16 8
28	30	5½	5	15	430	22 18 4	43 0 0	8 14 8	1 0 10	0 16 8
30	32	5½	5	15	486	27 1 8	47 10 0	8 14 8	1 5 0	0 16 8
32	34	6½	5⅜	16	610	35 18 4	62 15 0	10 7 4	1 11 3	0 19 6
36	38	6½	5⅜	17¾	700	43 15 0	78 0 0	10 7 4	1 17 6	0 19 6

"Pratt" Light Type Independent Chucks, No. 54

(British Made)

With Reversible Jaws



No. 54

These Chucks are accurate and sturdy and are intended for light work or amateur use only. They are designed for small lathes and for lathes of delicate construction.

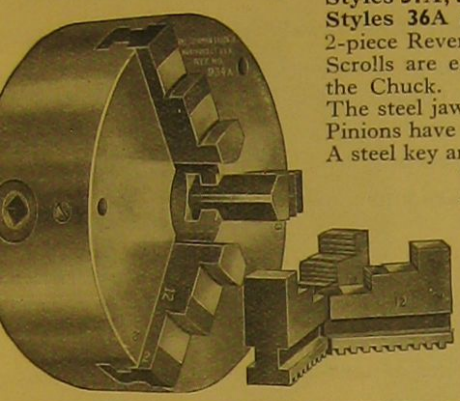
The weight and amount of overhang has been reduced to a desirable minimum.

In construction and design they are the same as the heavy Independent Type, No. 55.

Diam. of Chuck Ins.	Diam. of Hole in Body Ins.	Diam. of Recess for Back-plate Ins.	Approx. Weight Lbs.	Price of Chuck	Jaws, Each	Screws, Each
4	1	3½	5½	£3 2 6	£0 10 0	£0 4 3
5	1	3½	8	3 11 0	0 10 0	0 4 3
6	1 9/16	5	11¾	4 3 6	0 10 0	0 4 6

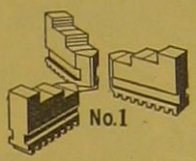
GEARED SCROLL CHUCKS

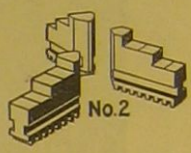
Cushman Geared Scroll Chucks (Made in U.S.A.)



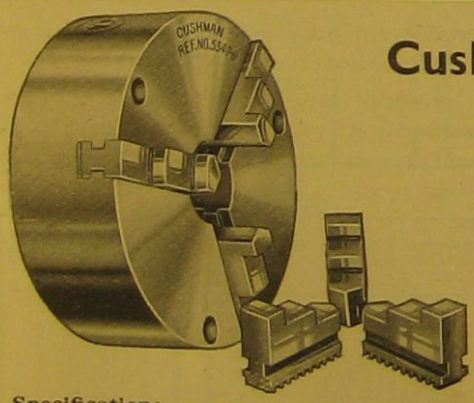
Styles 231A, 232A and 234A have bodies of machinery steel.
Styles 31A, 32A and 34A have bodies of best cast iron, with working parts of forged steel.
Styles 36A and 236A are iron and steel bodied Chucks respectively, and have Master 2-piece Reversible Jaws.
Scrolls are extra heavy, have particularly strong spirals, and fit accurately the hub of the Chuck.
The steel jaws are hardened and ground and are in perfect alignment with the scrolls.
Pinions have safety or mortised heads in which the wrench engages.
A steel key and screws for attaching to face-plate are furnished with each Chuck.
When ordering, style of jaws wanted should be stated. Unless otherwise specified, Chucks with No. 1 Jaws will be sent.

Style 31A and **231A** has one Set of Jaws, No. 1.
,, **32A** ,, **232A** ,, ,, ,, No. 2.
,, **34A** ,, **234A** has two Sets of Jaws, Nos. 1 and 2.
Style 36A and **236A** has one Set of Master 2 piece Reversible Jaws, No. 6.





Size Ins.	Diam. of Recess for Face-plate Ins.	Depth of Chuck Body Ins.	Height of Jaws Ins.	Diam. of Hole Ins.	Approx. Weight Lbs.	Price, One Set Jaws	Price, Two Sets Jaws	Extra Sets of 3 Jaws ordered without Chuck	Extra Soft Blank Jaws Per Set of Three	Extra Scrolls Each	Extra Pinions Each	Extra Keys Each
						Steel Body Styles 231A, 232A	Steel Body Style 234A					
3	2·812	1 5/8	11/16	5/8	2 1/2	£7 18 4	£9 3 4	£2 5 10	£1 13 4	£1 12 4	£0 9 5	£0 5 3
4	3·045	2 3/16	13/16	1	6 1/2	9 3 4	10 8 4	2 10 0	1 17 6	2 1 8	0 10 5	0 7 4
5	3·691	2 7/32	15/16	1 1/4	9 3/4	10 0 0	11 5 0	2 18 4	2 5 10	2 5 10	0 13 7	0 7 4
6	4·715	2 5/8	1	1 9/16	15	11 5 0	12 18 4	3 10 10	2 14 2	2 18 4	0 15 8	0 8 4
7 1/2	4·715	2 11/16	1 1/4	2	26	19 15 10	21 13 4	4 3 4	3 2 6	3 2 6	0 17 9	0 8 4
9	6·987	3 13/32	1 1/2	2 1/2	36	24 3 4	26 13 4	5 0 0	3 15 0	4 3 4	0 18 9	0 9 5
10 1/2	6·987	3 13/32	1 1/2	3	48	26 13 4	29 3 4	5 8 4	4 3 4	5 0 0	1 0 10	0 9 5
12	6·987	3 11/16	2 1/16	3	71	33 2 6	35 0 0	6 17 6	5 4 2	6 5 0	1 4 0	0 9 5
15	6·987	3 11/16	2 1/16	3 1/4	119	42 10 0	46 13 4	8 6 8	6 5 0	8 6 8	1 8 2	0 9 5
						Iron Body Styles 31A, 32A	Iron Body Style 34A					
7 1/2	4·715	2 11/16	1 1/4	2	26	£12 18 4	£15 0 0	£4 3 4	£3 2 6	£3 2 6	£0 17 9	£0 8 4
9	6·987	3 13/32	1 1/2	2 1/2	36	15 8 4	17 18 4	5 0 0	3 15 0	4 3 4	0 18 9	0 9 5
10 1/2	6·987	3 13/32	1 1/2	3	48	17 10 0	20 0 0	5 8 4	4 3 4	5 0 0	1 0 10	0 9 5
12	6·987	3 11/16	2 1/16	3	71	20 8 4	23 10 10	6 17 6	5 4 2	6 5 0	1 4 0	0 9 5
15	6·987	3 11/16	2 1/16	3 1/4	119	29 3 4	33 10 10	8 6 8	6 5 0	8 6 8	1 8 2	0 9 5
						3 Jaw Chucks with 1 Set Master Reversible 2 Piece Jaws.						
						Iron Body Style 36A	Steel Body Style 236A	Extra Top Jaws only Set of 3	Extra Soft Blank Top Jaws Set of 3			
18	9·509	4 7/16	2 5/8	4 1/2	141	£54 7 6	£78 2 6	£9 11 8	£6 13 4	£18 15 0	£2 5 10	0 14 7
21	9·509	4 7/16	2 5/8	4 1/4	194	78 2 6	104 15 10	11 5 0	8 10 10	25 0 0	2 10 0	0 18 9
24	11·012	4 7/16	2 5/8	5	—	101 13 4	134 7 6	11 5 0	8 10 10	37 10 0	3 15 0	0 18 9



Cushman New Light Weight Geared Scroll Chucks, No. 340B (Made in U.S.A.)

These new light-weight Chucks **designed for use on bench lathes** have a guaranteed **centring accuracy within ·003 in. and bodies made of semi-steel.**

Self-centring with the geared scroll movement these Chucks embody the finest materials, workmanship and are in every way up to the Cushman standard.

Chuck bodies are of semi-steel, peripheries and faces accurately ground. **Scrolls are of high carbon steel.** Pinions of heat-treated chrome nickel steel.

Jaws are of heat treated alloy steel, strong, tough and hard on their bites.

Specification:—

Diam. of Chuck, 5 ins; Diam. of Centre hole, 1 13/32 ins.; Diam. of Back plate recess, 2 ins.; Nett weight, approx., 8½ lbs.

Price:—

No. 340B. 5 inch Chuck with 2 Sets of Jaws, £6 5 0. Extra Sets of 3 Jaws, £1 17 6. Scrolls, £1 11 3 each. Pinions, 9/5 each. Wrenches, 6/3 each.

COMBINATION CHUCKS

Cushman TRI-PLEX Combination Chuck (Made in U.S.A.)

On "Tri-plex" Chucks both Universal and Independent movements of jaws automatically indicate when jaws have found a common centre.

Self-Centring–Independent–Eccentric

Style 63A with Three Jaws, Style 64A with Four Jaws

Accuracy, ease of operation, and quick conversion from Universal to Independent action, or reverse, particularly adapts Cushman "Tri-plex" Chucks to either rapid tool-room production or general lathe work.

The bodies are in one piece and practically unbreakable.

Jaws are of steel, hardened on all surfaces. They are reversible and interchangeable and move freely in the bodies with only ·0001 in. clearance.

The screws are of hardened steel and are self-cleaning.

Thrust bearings are self-aligning, hardened and of improved design.

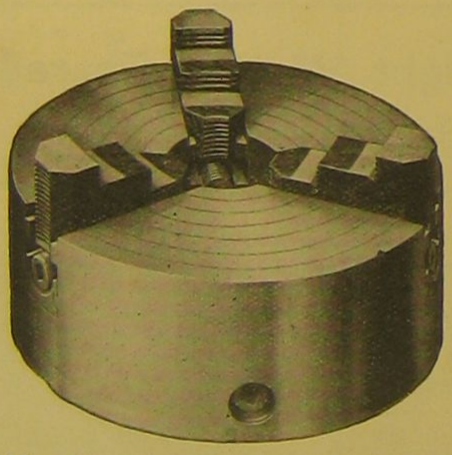
Prices printed are for Triplex Chucks with **Iron Bodies** (Nos. 63A and 64A) **sizes 9 to 24 ins.**, and **steel bodies** (Nos. 263A and 264A) **sizes 6 ins. and 7½ ins.** Larger sizes with steel bodies quoted on request.

Size, Diam. Ins.	Diam. of Face-plate Recess Ins.	Diam. of Hole Ins.	Depth of Chuck Body Ins.	Height of Jaws Ins.	Approx. Weight Lbs. No. 63A	Price, Each		Extra Stepped Jaws only		Extra Screws Each	Extra Keys Each
						No. 63A 3 Jaw	No. 64A 4 Jaw	Per Set of 3	Per Set of 4		
6	4·715	1 9/16	3¼	1⅛	24	£21 0 10	£23 10 10	£5 12 6	£7 10 0	£0 14 7	£0 10 5
7½	4·715	2	3 9/16	1 5/16	42	25 0 0	28 10 10	6 5 0	8 10 10	0 16 8	0 10 5
9	6·987	2½	4 9/16	1⅜	65	27 10 0	31 0 10	6 17 6	9 3 4	0 18 9	0 12 6
10½	6·987	3	4 9/16	1⅜	90	31 0 10	34 3 4	6 17 6	9 3 4	0 19 10	0 12 6
12	6·987	3	5	1 11/16	115	35 0 0	39 3 4	10 0 0	13 10 10	1 2 11	0 12 6
15	6·987	3¼	5	1 11/16	175	44 3 4	50 0 0	12 10 0	16 13 4	1 5 0	0 14 7
18	9·509	4¼	5¾	2 23/32	270	82 18 4	95 8 4	18 15 0	25 0 0	2 3 9	1 2 11
24	11·012	5	5¾	2 23/32	466	125 0 0	137 10 0	23 10 10	31 5 0	2 7 11	1 5 0

Other spare parts can be supplied; also extra jaws in various styles. **Prices on application.**

"Pratt" Geared Scroll Combination Chucks (British Made)

No. 60, with Three Reversible Jaws No. 61, with Four Reversible Jaws



These Chucks are supplied with three Jaws, as illustrated, or with four Jaws, as desired. Kindly state this particular when ordering.

This Chuck is a combination of the Universal and Independent types.

The jaws, which are reversible, can be operated together as in a Universal Chuck or separately as in an Independent Chuck.

All working parts are carefully case-hardened where necessary. The faces of the jaws are accurately ground to facilitate the setting of the work. This Chuck can be put to a larger number of uses and is exceptionally strong in proportion to its size.

Chuck Size Ins.	Diam. of Hole in Body Ins.	Diam. of Recess for Back Plate Ins.	Approx. Weight Lbs.	Price, No. 60, with Set of 3 Jaws	Price, No. 61, with Set of 4 Jaws
4	1	3 1/16	10¾	£10 2 6	£11 12 6
5	1¼	3 11/16	16	10 17 6	13 4 0
6	1 9/16	4¾	23	12 0 0	13 17 6
7½	2	4¾	40	14 12 6	16 10 0
9	2½	5⅝	68	15 0 0	17 3 9
10½	3	5⅝	88	17 10 0	19 13 9
12	3	7	124	20 0 0	23 8 9
15	3¼	9½	206	26 11 3	30 0 0
18	4	9½	250	33 2 6	38 15 0
21	4½	9½	340	41 17 6	49 0 0

GEARED SCROLL CHUCKS

"Pratt" Geared Scroll Chucks (British Made)

No. 58.—3-Jaw Cast-iron Body. No. 59.—4-Jaw Cast-iron Body. No. 78—3-Jaw Cast-steel Body.

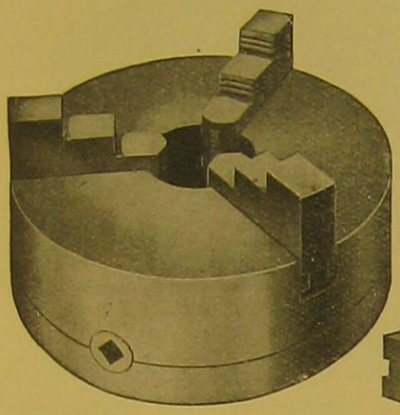
Two sets of Jaws are supplied as standard with each Chuck. If one set only is required this should be specifically stated.

Jaws Type A, inside. **Jaws Type B, outside.**

Jaws Type C, cutting-off. **Jaws Type D, blank soft.**

"Pratt" Geared Scroll Chucks are made of the finest procurable materials throughout.

The Body of Nos. 58 and 59 is a specially clean, tough, cast iron, and **cast steel for No. 78.**



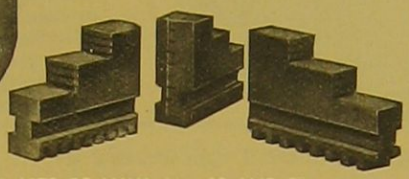
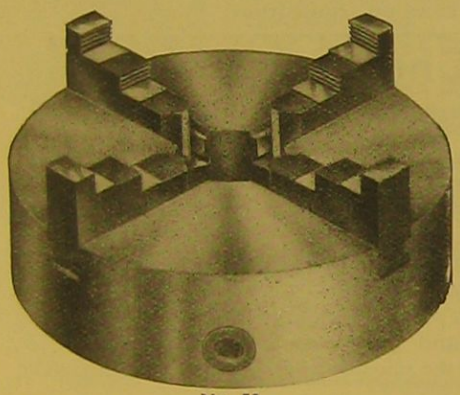


ILLUSTRATION SHOWING TWO SETS OF JAWS, Nos. 58 AND 78

The Jaws are steel, in one piece, and are case-hardened on all gripping surfaces. They are ground to the finest limits. The jaw slides are made as long as possible and accurately fitted.

The Scroll and Pinion Gears are made from a special high tensile steel. Steel Body Chucks No. 78 have Scroll and Pinions of chrome vanadium steel.

The Screws for attaching the Chuck to the back-plate are well spaced out to facilitate fitting to large diameter lathe spindles.



No. 59

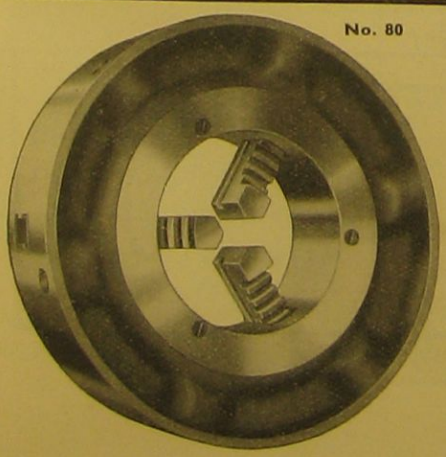
Prices each

Size Inches	No. 58		No. 59		No. 78	
	One Set of Jaws	Two Sets of Jaws	One Set of Jaws	Two Sets of Jaws	One Set of Jaws	Two Sets of Jaws
3	£3 17 6	£4 5 0	—	—	—	—
4	3 19 6	4 12 0	4 3 4	£5 0 0	£6 7 0	£6 19 6
5	4 7 6	5 0 0	4 15 10	5 12 6	6 17 6	7 10 0
6	5 0 0	5 17 0	5 7 4	6 10 0	8 1 6	8 18 6
7½	5 12 6	6 13 6	6 2 0	7 10 0	9 13 0	10 14 0
9	6 17 6	7 18 6	7 7 0	8 15 0	12 3 6	13 4 6
10½	7 18 6	9 3 6	8 10 10	10 4 2	14 17 6	16 2 6
12	9 7 6	10 17 0	10 2 4	12 1 8	18 13 0	20 2 6
15	13 15 0	15 17 0	14 5 8	17 1 8	27 18 0	30 0 0
18	18 13 6	21 3 6	19 18 4	23 5 0	37 10 0	40 0 0
21	23 17 6	27 0 0	25 19 2	30 2 6	47 17 6	51 0 0
24	31 0 0	35 0 0	33 3 4	38 10 0	61 0 0	65 0 0

Spare Parts—Prices and Dimensions

Diam. of Chuck Ins.	Extra Set of 3 Jaws ordered without Chuck	Scrolls for No. 58 and 59 Each	Scrolls for No. 78 Each	Pinions for Nos. 58 and 59 Each	Pinions for No. 78 Each	Price Keys Each	Diam. of Hole in Body Ins.	Diam. of Recess for Back-plate Ins.	Approx. Weight with two Sets of Jaws Lbs.
3	£1 2 6	£0 16 6	£1 4 9	£0 5 3	£0 7 11	£0 6 0	5/8	1 7/8	3
4	1 5 0	0 19 6	1 9 3	0 6 3	0 9 5	0 6 6	1	3 1/16	8
5	1 8 2	1 4 0	1 16 0	0 6 3	0 9 5	0 6 6	1 1/4	3 11/16	11
6	1 11 3	1 17 6	2 16 3	0 8 4	0 12 6	0 8 6	1 9/16	4 3/4	18
7½	1 17 6	2 6 0	3 9 0	0 9 5	0 14 2	0 8 6	2	5 1/16	31
9	2 7 6	2 18 6	4 7 9	0 9 5	0 14 2	0 10 6	2 1/2	5 5/8	42
10½	2 10 0	3 8 9	5 3 2	0 10 5	0 15 8	0 10 6	3	5 5/8	63
12	3 2 6	4 6 3	6 9 5	0 12 6	0 18 9	0 10 6	3	7	88
15	3 15 0	5 16 8	8 15 0	0 16 8	1 5 0	0 10 6	3 1/4	7	155
18	5 0 0	7 5 9	10 18 8	1 0 10	1 11 3	0 16 8	4	9 1/2	211
21	6 5 0	9 13 3	14 10 0	1 5 0	1 17 6	0 16 8	4 1/2	9 1/2	263
24	6 5 0	10 9 9	15 14 8	1 11 6	2 7 3	0 16 8	4 1/2	9 1/2	331

No. 80



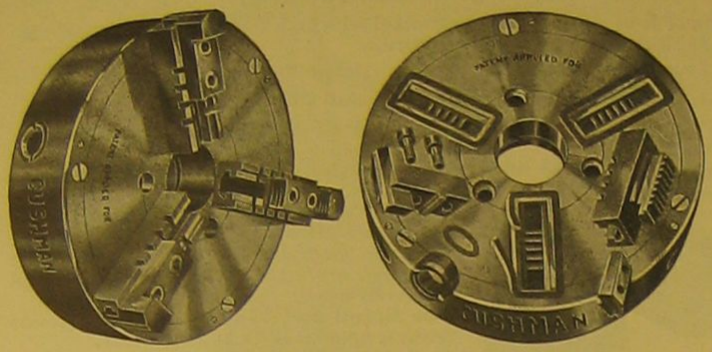
"Pratt" Spindle End Chuck, No. 80 (British Made)

The Body is made of semi-steel and the Jaws of steel suitably case-hardened. The Chucks are suitable for supporting bars at the tail end of lathe spindle, also for use on centring machines and other purposes.

Diam. of Chuck Inches	Will hold Diam. Inches	Size of Hole Inches	Approx. Weight Lbs.	Price Each
8	3 3/16	3 3/8	18½	£7 10 0
9¾	4 1/8	4 9/16	27½	8 15 0

GEARED SCROLL CHUCKS

Cushman Geared Scroll Air and Water-tight Chucks Style 30 (Made in U.S.A.)



These three-jaw geared scroll Chucks are specially constructed to prevent foreign matter entering working parts.

They may be used on wet grinding machines, for holding grinding wheels while being trued, and for almost any kind of work where dust or grit is produced.

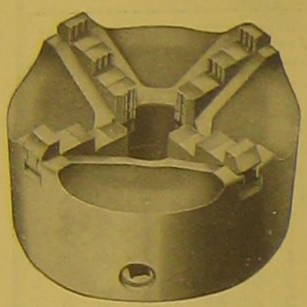
Actual severe tests have demonstrated that these Air-tight Chucks can be used for many months without special attention.

The bodies are made of grey iron packed with grease and sealed; scrolls and pinions are similar to those in the other Cushman Geared Scroll Chucks, and each pinion head is protected by a felt-backed packing ring.

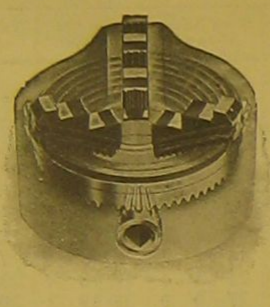
Size, ins.	Capacity, ins.	Diam. of Face-plate Recess, ins.	Depth Chuck Body, ins.	Depth overall, ins.	Price each
12	$\frac{1}{2}$ to 12$\frac{3}{4}$	5·618	3	6$\frac{5}{16}$	£51 13 4
14	1 to 16	6·987	3$\frac{9}{16}$	6$\frac{7}{8}$	£75 0 0

17, 21 and 27 in. Chucks can also be supplied. **Prices on application.**

Taylor Geared Scroll Chucks (British Made)



TAYLOR 4-JAW CHUCK FOR GENERAL LATHE WORK



SECTIONAL VIEW OF TAYLOR 3-JAW CHUCK

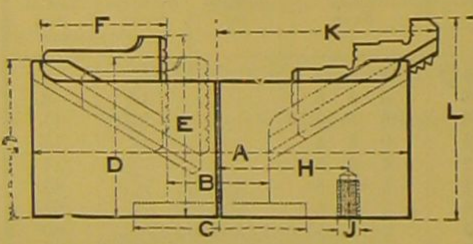
Recommended for Strength and Endurance

With Taylor's Improved Spiral Lathe Chucks the **jaws are supported in the direct line of pressure,** and are forced into contact with the V section thread of the spiral.

Moreover, there is the advantage that with a spiral a finer pitch can be used than with a scroll. This increases the gripping power and the area of the wearing surfaces.

The spiral and jaws are hardened and ground, which adds to the smoothness of working, their durability, and accuracy.

Prices—3 and 4-Jaw Chucks



Size, Ins.	3-Jaw Chucks			4-Jaw Chucks			Extra Pinions, Each
	With 1 Set of Jaws	With 2 Sets of Jaws	Extra Soft Blank Jaws, Per Set	With 1 Set of Jaws	With 2 Sets of Jaws.	Extra Soft Blank Jaws, Per Set	
4$\frac{1}{2}$	£4 16 0	£5 17 0	£0 15 6	£5 17 0	£7 4 0	£1 0 0	£0 5 6
5$\frac{1}{2}$	5 4 0	6 6 0	0 16 6	6 6 0	7 16 0	1 2 0	0 6 0
6$\frac{1}{2}$	5 15 0	6 17 0	0 18 0	6 17 0	8 7 0	1 4 0	0 7 0
8$\frac{1}{2}$	6 17 0	8 5 0	1 4 6	8 5 0	10 2 0	1 12 0	0 7 6
10$\frac{1}{4}$	9 10 0	11 7 0	1 15 6	11 7 0	13 16 0	2 8 0	0 8 0
12$\frac{1}{4}$	11 7 0	13 10 0	2 1 0	13 10 0	16 7 0	2 15 0	0 9 6
16$\frac{1}{4}$	20 18 0	24 0 0	3 2 0	24 0 0	28 12 0	4 4 0	0 12 6
20	33 0 0	38 7 0	5 0 0	38 7 0	45 10 0	6 16 0	0 16 6

The soft blank Jaws, listed above, have the teeth at the back hardened the fronts being left soft can be machined as required.

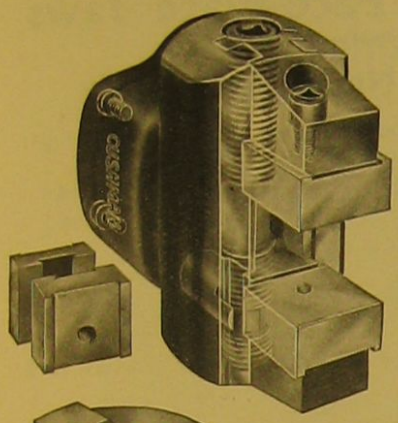
Dimensions (see diagram above)

Size, Capacity Ins.	Holds Bars Ins.	Diameter A. Ins.	Diameter of Hole B. Ins. Std.	Diameter of Hole B. Ins. Max.	Diam. of Face-plate Recess C. Ins.	Depth Overall with Jaws in Lowest Position D. Ins.	Depth Overall with Jaws in Normal Position E. Ins.	Length of Jaws F. Ins.	Depth of Chuck Body G. Ins.	Depth Overall with Jaws in Extreme Position L. Ins.	Weight, Lbs. 3-Jaw	Weight, Lbs. 4-Jaw
4$\frac{1}{2}$	$\frac{3}{32}$ to $\frac{3}{4}$	4$\frac{1}{2}$	$\frac{13}{16}$	$\frac{15}{16}$	3$\frac{1}{16}$	3$\frac{3}{16}$	3$\frac{7}{16}$	1$\frac{13}{16}$	2$\frac{7}{8}$	3$\frac{9}{16}$	8$\frac{3}{4}$	9$\frac{1}{4}$
5$\frac{1}{2}$	$\frac{1}{8}$,, 1	5$\frac{1}{2}$	1$\frac{1}{16}$	1$\frac{1}{4}$	3$\frac{7}{8}$	3$\frac{17}{32}$	3$\frac{3}{4}$	2$\frac{3}{16}$	3$\frac{3}{16}$	4	14$\frac{1}{2}$	14$\frac{1}{2}$
6$\frac{1}{2}$	*$\frac{7}{16}$,, 1$\frac{1}{4}$	6$\frac{1}{2}$	1$\frac{5}{16}$	1$\frac{5}{8}$	4$\frac{33}{32}$	4	4$\frac{9}{32}$	2$\frac{17}{32}$	3$\frac{11}{16}$	4$\frac{9}{16}$	23	23$\frac{1}{4}$
8$\frac{1}{2}$	*$\frac{9}{16}$,, 2$\frac{3}{8}$	8$\frac{1}{2}$	2$\frac{1}{2}$	2$\frac{7}{8}$	6$\frac{1}{2}$	4$\frac{7}{16}$	5	3$\frac{3}{16}$	4$\frac{9}{32}$	5$\frac{9}{16}$	41$\frac{1}{2}$	43
10$\frac{1}{4}$	*$\frac{11}{16}$,, 2$\frac{11}{16}$	10$\frac{1}{4}$	2$\frac{13}{16}$	3$\frac{5}{8}$	8$\frac{1}{2}$	4$\frac{3}{8}$	5$\frac{7}{16}$	3$\frac{7}{8}$	4$\frac{1}{2}$	5$\frac{27}{32}$	64$\frac{1}{2}$	69
12$\frac{1}{4}$	*$\frac{7}{8}$,, 3$\frac{1}{2}$	12$\frac{1}{4}$	3$\frac{5}{8}$	5$\frac{1}{8}$	6$\frac{1}{8}$	4$\frac{31}{32}$	5$\frac{11}{16}$	4$\frac{1}{4}$	4$\frac{13}{16}$	6$\frac{7}{16}$	97	98
16$\frac{1}{4}$	$\frac{15}{16}$,, 5	16$\frac{1}{4}$	5$\frac{1}{8}$	6$\frac{5}{8}$	9$\frac{3}{8}$	4$\frac{13}{16}$	6$\frac{1}{8}$	5$\frac{1}{2}$	5$\frac{7}{32}$	7	182	185
20	1 ,, 6$\frac{1}{2}$	20	6$\frac{9}{16}$	8$\frac{1}{8}$	11	5	6$\frac{15}{16}$	7$\frac{3}{16}$	5$\frac{11}{16}$	7$\frac{1}{4}$	246	288

*These sizes are supplied to hold smaller diameters, as follows:—6$\frac{1}{2}$–$\frac{5}{32}$; 8$\frac{1}{2}$–$\frac{3}{16}$; 10$\frac{1}{4}$–$\frac{1}{4}$; 12$\frac{1}{4}$–$\frac{3}{8}$.

TWO-JAW CHUCKS

Cushman Two-Jaw Self-Centring Chucks (Made in U.S.A.)



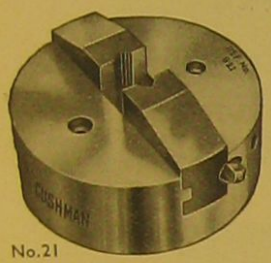
No. 29, "Incomparable" Box Body Type.

Main jaws are interchangeable and all surfaces including the screw thread are hardened.
Self-cleaning hardened chrome nickel steel screws are fitted.
Thrust bearings are hardened, self-aligning, easily inserted and never get out of place.
The inner hub in the back is a feature distinguishing No. 29 from other two-jaw chucks, and it forms an excellent attachment plate.

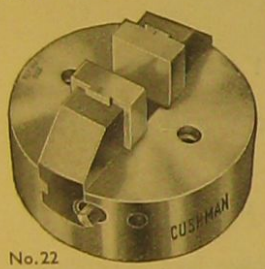
Size Ins.	Capacity Ins.	Width Ins.	Approx. Depth with Main Jaws Ins.	Diam. of Recess Ins.	Width, Main Jaws Ins.	Main Jaws open Ins.	With Slip Jaws open Ins.	Price, Each	Extra Main Jaws, per pair	Extra Slip Jaws, per pair
7½	0–5 3/16	4¼	6⅛	3·250	1·690	4⅛	1⅞	£15 0 0	£6 13 4	25/0
9	0–6½	5¼	7 17/32	4·000	1·940	5⅛	2⅜	18 3 4	8 10 10	33/4
12	1–7	5⅝	8 3/32	4·375	1·940	7¾	5	21 5 0	9 15 10	45/10
15	1–9	6¼	9 13/32	5·000	2·190	9	5¾	27 10 0	15 0 0	58/4

Nos. 21 and 22, Round Body Type

These Chucks are for brass workers, and for holding drills and various other kinds of work that cannot be conveniently held in a three or four-jaw chuck. They are made to be fitted to a back-plate. Chuck bodies are of iron.
In No. 21 Chucks the faces of the jaws are formed with V grooves. The bites are serrated except 4½-in. size, which are plain.
In No. 22 Chucks the faces of the main jaws are recessed to take soft blank false jaws.



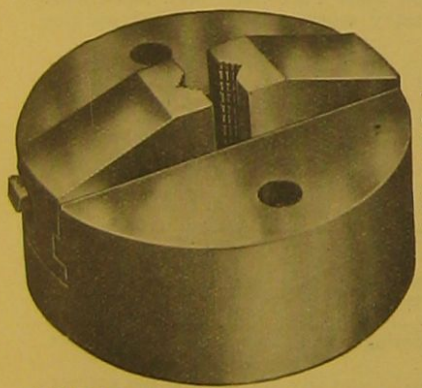
No. 21



No. 22

Size Ins.	Diam. of Recess Ins.	Depth Chuck Body Ins.	No. 21 Chuck Width of Jaws Ins.	No. 21 Chuck Height of Jaws Ins.	No. 22 Chuck Height Slip Jaws Ins.	No. 22 Chuck Thkns. Slip Jaws Ins.	Capacity in Jaws No. 21 Ins.	Capacity in Jaws No. 22 Ins.	Price, Each No. 21	Price, Each No. 22	Extra Main Jaws, per pair	Extra Slip Jaws, per pair
4½	4·118	2⅜	1·205	1 1/16	1⅜	9/16	1¼	2	£8 10 10	£8 10 10	£5 0 0	20/10
6	5·618	2⅞	1·690	⅞	2 1/16	13/16	1½	2½	11 13 4	11 13 4	6 13 4	25/-
7	6·666	3¼	1·690	13/16	2 1/16	13/16	2	3	14 15 10	14 15 10	6 13 4	25/-
9	6·666	3⅜	1·940	1 3/16	2¼	15/16	2½	4	16 17 6	16 17 6	8 10 10	33/4
12	9·509	3½	2·190	1 13/32	3⅛	1 1/16	3	6	21 0 10	21 0 10	9 15 10	45/10

"Pratt" Two-Jaw Chucks (British Made)

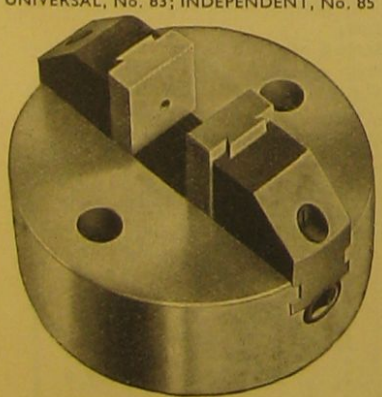

UNIVERSAL, No. 83; INDEPENDENT, No. 85

Universal and Independent

These are round-bodied Chucks with recess for back-plate. They are fitted with dove-tailed slip jaws, except Nos. 83 and 85 which have V-type jaws.
Nos. 82, 83, and 88 are Universal; Nos. 84 and 85 are Independent.
The operating screw works on one side of the jaw in Nos. 82, 83 and 85 to give an unobstructed hole through centre of chuck; No. 88 has no hole through the body, and the screw is placed directly under the jaws.
Types Nos. 84 and 88 are new and improved pattern chucks of considerably stronger design, and embody mechanical improvements not found in the other types.

Prices for all Nos. 82 to 88

Diam. Ins.	Price, Each	Extra Main Jaws, per pair	Extra Slip Jaws, per pair	Screws, Universal Each	Screws, Independent Each
5	£5 6 2	£3 0 0	£0 10 0	£0 15 0	£0 7 6
6	6 11 6	3 15 0	0 12 6	0 16 0	0 8 0
7½	8 4 6	4 5 0	0 13 9	0 17 6	0 8 9
9	9 11 8	5 0 0	0 15 0	1 2 6	0 11 3
12	12 6 2	5 15 0	0 18 9	1 5 0	0 12 6
15	17 2 0	7 10 0	1 2 6	1 10 0	0 15 0


INDEPENDENT, No. 84; UNIVERSAL, No. 88 CENTRAL SCREW

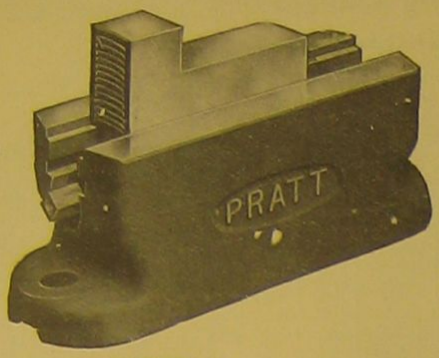
Dimensions

Diam. of Chuck	From face of Body to top of Jaws Nos. 82, 84 and 88	From face of Body to top of Jaws Nos. 83 and 85	Diameter of Hole through Body Nos. 82 and 83	Diameter of Hole through Body Nos. 84 and 85	Thickness of Body	Diameter of Recess for Back-plate	Jaws open, about	Width of Jaws	Approx Weight.
Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Lbs.
5	1¼	10/16	1	1	2⅛	4⅛	1½	1 3/16	14
6	1⅜	1	1¼	1¼	3	5	1½	1⅜	24
7½	1¾	1	1½	1½	3 6/16	6 11/16	2½	1¾	40
9	2	1½	1¾	1¾	3⅜	6 11/16	3	2	54
12	2⅞	1½	2¼	3	3¾	9½	4½	2¼	91
15	3	1½	2¼	4	4	9½	7½	2¼	140

FACE-PLATE JAWS AND CASTINGS

Pratt Reversible Face-Plate Jaws

(British Made)

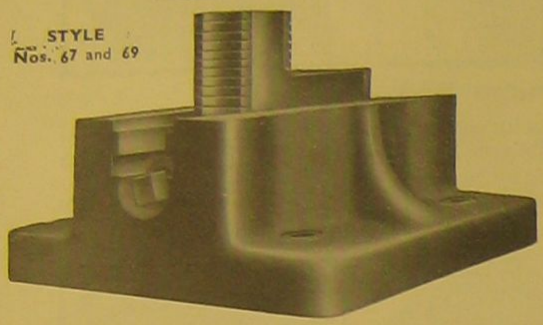


STYLE Nos. 66 and 68

No. 66, Iron Body; No. 68, Steel Body

Operating screws supported by hardened steel double thrust bearings; Jaws are case-hardened and of ample proportions.

Size, ins.	6	8	10	12	14
Height of Jaws, ins. ...	2	2	2¼	2⅝	2⅝
Total Height, ins. ...	6	6	6¼	7¼	7¼
Price, Set of 4, No. 66 (Iron Body)	£10 16 8	£13 6 8	£16 13 4	£23 6 8	£30 0 0
Price, Set of 4, No. 68 (Steel Body)	15 0 0	19 3 4	25 0 0	33 6 8	45 16 8

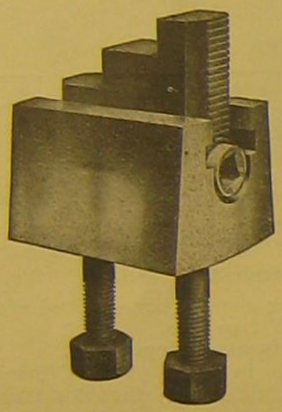


STYLE Nos. 67 and 69

No. 67, Iron Body; No. 69, Steel Body

These types are similar to those shown above with the exception of the body, which is constructed for fixing on face-plates or boring mill tables having parallel slots. Bases can be supplied with or without bolt holes, as desired.

Size, ins.	6	8	10	12	14
Height of Jaws, ins. ...	2	2	2¼	2⅝	2⅝
Total Height, ins. ...	5 9/16	5 9/16	6	6½	6½
Price, Set of 4, No. 67 (Iron Body)	£10 16 8	£13 6 8	£16 13 4	£23 6 8	£30 0 0
Price, Set of 4, No. 69 (Steel Body)	15 0 0	19 3 4	25 0 0	33 6 8	45 16 8



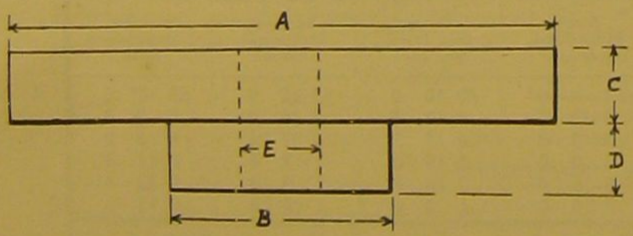
STYLE No. 71

No. 71, Steel Body, Light Pattern

Although compact and light in weight, these Face-plate Jaws will endure severe strain and grip moderately heavy work. Body and all working parts are of steel.

Size, ins.	3	4
Height of Jaws, ins.	1⅜	1¾
Total Height, ins.	3⅝	4¼
Price, Set of 3	£9 7 6	£10 10 0
Price, Set of 4	12 0 0	13 10 0

Back-Plate Castings (British Made)



We can supply Back-plate Castings to suit various sizes and makes of Chucks.

The diagram is lettered clearly, and any one sending the correct measurements can be assured of getting a casting which will be suitable for their particular chuck.

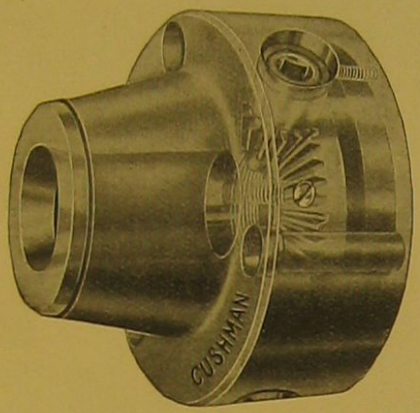
We also undertake the fitting of Chucks to Back-plates, provided the lathe headstock with mandrel is sent to us.

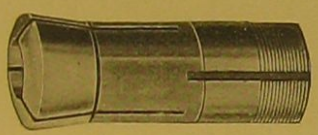
Plugs are usually used for fitting Drill Chucks, and will be quoted for on application, as, owing to the various sizes and different tapers, we do not keep a stock of plugs ready turned.

No.	A Ins.	B Ins.	C Ins.	D Ins.	E Ins.	Weight Lbs.	Weight Ozs.	Price Each	No.	A Ins.	B Ins.	C Ins.	D Ins.	E Ins.	Weight Lbs.	Weight Ozs.	Price Each
1	2½	1⅜	7/16	9/16	Solid	1	—	0/6	8	6¼	3⅛	13/16	1 9/16	1	9	8	4/6
2	3½	1⅝	½	11/16	½	1	12	1/-	10	7¼	3⅝	15/16	1 13/16	1¼	14	—	6/-
3	4	2	⅝	13/16	⅝	2	12	1/6	11	8⅛	4	7/8	1 13/16	1½	18	—	9/-
4	5	2⅜	11/16	⅞	¾	4	8	2/3	12	10	4 1/16	1⅛	2¼	1⅝	29	3	14/-
5	5½	2½	¾	1 1/16	Solid	5	14	3/-	13	6⅛	3 11/16	1	1⅞	1⅞	11	4	5/9
5 cored	5½	2½	¾	1⅛	¾	5	12	3/-	14	8⅛	4¾	1	2	2	23	—	11/-
7	6⅜	2½	¾	1 1/16	Solid	7	10	3/9	15	13½	6¼	1¼	2¼	2⅜	61	—	29/6
7 cored	6⅜	2½	¾	1 1/16	⅞	7	8	3/9									

Cushman Nose Type Collet Chucks

Nos. 115, 215 and 315 (Made in U.S.A.)





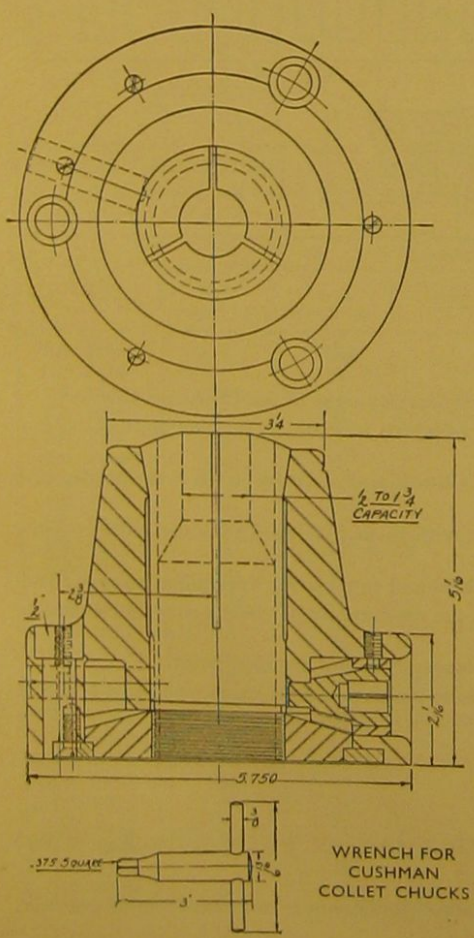
Cushman Collet Chucks afford greater facility for accurately holding work in larger size collets than has previously been possible. These Chucks are a combination of strength and accuracy. **The bodies are one solid piece of steel.** The Chucks require a back-plate for attachment to the machine.

Any bar can be precisely held that will pass through a lathe spindle, for the Chuck when mounted on the spindle nose will offer no obstruction to the hole. The mounting plate should be a little larger than the Chuck body fitting over it.

Chucking is accomplished by drawing a Collet, in which the work is to be engaged, into the exterior wall of the Chuck. One face of the disc is cut as a bevelled gear and is turned by a pinion and key. The threaded end of the Collet is engaged by the thread of the disc. Thus the Collet is drawn back as the key is turned.

Dimensions—See Diagram

Chuck No.	115	215	315
Collet Capacity, Round, "A" ins.	$\frac{1}{16}$ to $1\frac{1}{8}$	$\frac{1}{8}$ to $1\frac{3}{4}$	1 to $3\frac{1}{4}$
Diameter of Chuck, "B" ... ,,	5	$5\frac{3}{4}$	$8\frac{1}{4}$
Length Chuck without Collet, "C" ... ... ,,	$3\frac{9}{16}$	$4\frac{35}{32}$	$5\frac{9}{16}$
Depth Chuck, back to shoulder, "D" ... ... ,,	$1\frac{15}{16}$	$2\frac{1}{16}$	3
Diameter at Nose, "E" ... ,,	$2\frac{3}{8}$	$3\frac{1}{4}$	$5\frac{1}{2}$
Distance Centre of Collet to Centre of "F" Bolt Holes ... ,,	2	$2\frac{3}{8}$	$3\frac{5}{8}$
Diam. of Bolt Holes in Chuck Body, "G" ... ... ,,	$\frac{1}{2}$ (3-120°)	$\frac{1}{2}$ (3-120°)	$\frac{5}{8}$ (3-120°)
Approx. Net Weight ... ... lbs.	12	19	50



WRENCH FOR CUSHMAN COLLET CHUCKS

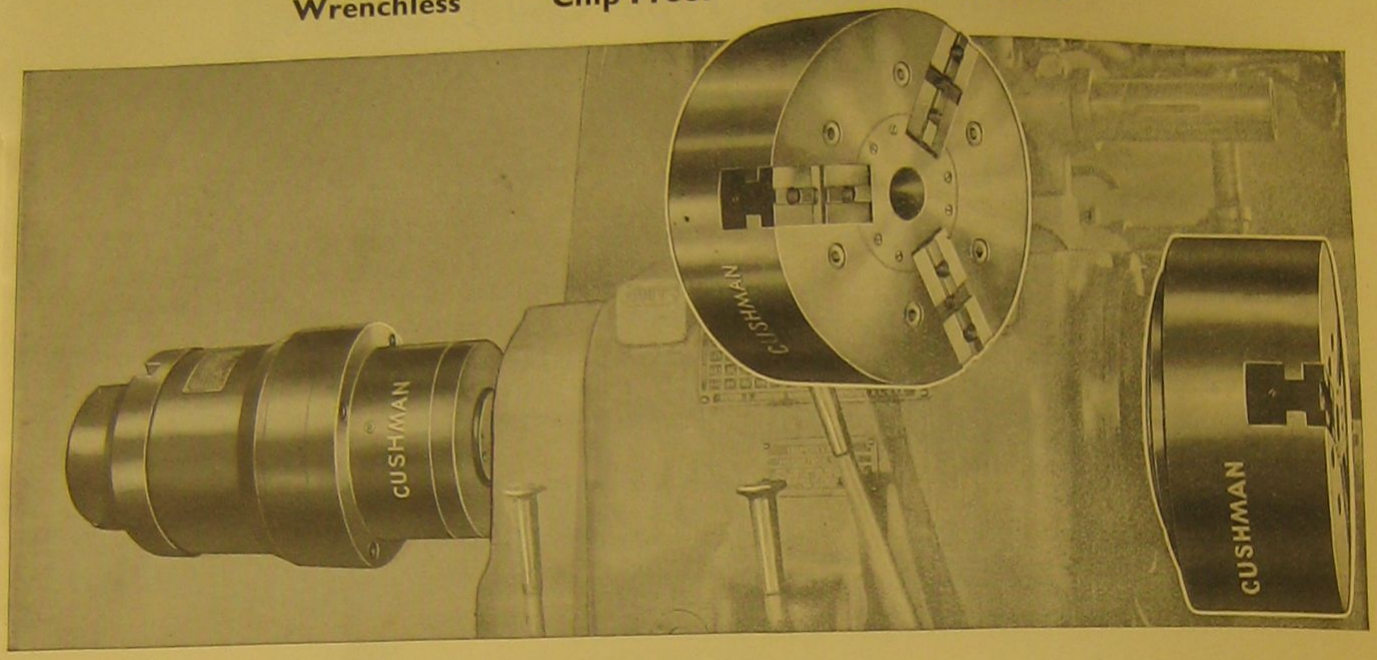
Prices

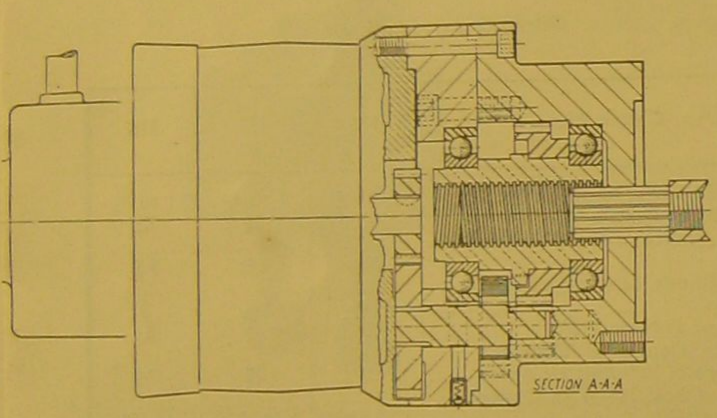
Chuck No.	115	215	315
Price ... ... each	£18 15 0	£21 17 6	£62 10 0
Collets (American Made) ,,	1 17 6	2 16 3	9 7 6
,, (British Made) ... ,,	—	1 5 0	—
Extra Nuts ... ... ,,	2 14 2	2 14 2	—
,, Pinions ... ... ,,	0 14 7	0 14 7	—
,, Wrenches ... ... ,,	0 6 3	0 6 3	—

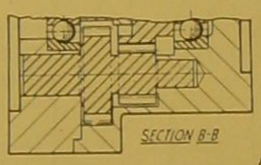
ELECTRICALLY OPERATED CHUCKS

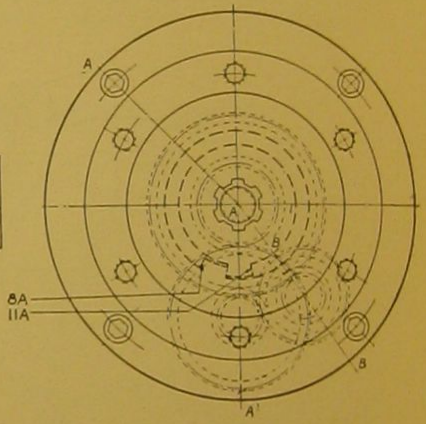
"Cushmatic" Self-Centring Steel Body Chucks (Made in U.S.A.)

Wrenchless **Chip Proof** **Motor Controlled**









These electrically operated, motor-controlled Chucks are an entirely new development of the Cushman Chuck Co.

The outfit is simple in construction and consists of two parts only, either of which is complete in itself and can be supplied as a separate unit.

The parts comprising the "Cushmatic" Chuck are:—Lever-operated Chuck and a motor with Gear Reduction Unit, connected by a draw bar.

Tremendous gripping power is a special feature of these new Chucks; a test with 15-inch 3-Jaw Chuck showed a gripping pressure on the work of more than 10 tons.

Electric power is used only in operating the Chuck jaws—power closes them and equal power is required to open them.

The "Cushmatic" Unit is self-contained, and therefore becomes part of the machine itself. Being entirely electrically operated there are no dirty or leaky oil or air lines to get in the way.

Chucks are self-centring, with lever jaw movement which is practically instantaneous, and are chip proof.

Either the whole or a separate unit can be supplied. For instance, where an air-operated chuck is in use and it is desired to change over to electrical operation, a Rear End Unit, Draw Bar, and necessary Adapter Plate only would be required. (Prices of Adapters vary according to circumstances.)

Chuck sizes ... ... ins.	**8**	**10**	**12**	**15**	**18**	**21**	**24**
Diam. of Pilot Hole (proposed National Standard) ... ... ins.	1⅛	1½	1¾	2	2½	3	5

Prices for Complete "Cushmatic" Equipment with 2-Jaw or 3-Jaw Chucks. Also Separate units—**On Application.**

When ordering, specify make, type, and size of machine on which the "Cushmatic" equipment is to be used and, if possible, furnish blueprint of spindle.

ELECTRICALLY OPERATED MAGNETIC CHUCKS

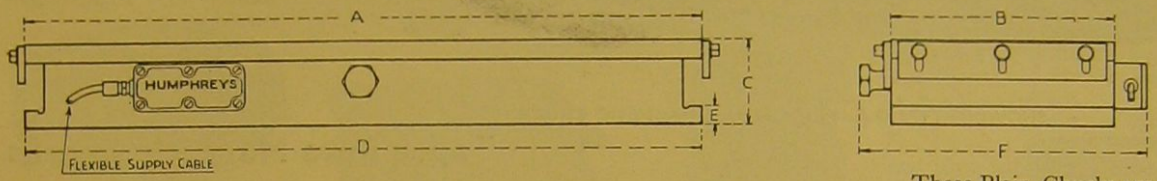
Plain Magnetic Chucks, Type F.A. (British Made)

For Direct Current only. **When ordering state voltage.**

These magnetic Chucks are of the latest design and embody very great holding power, absolute rigidity, absence of residual magnetism and perfect protection for the windings against water and cutting compounds.

214

Showing a Type "F.A." Magnetic Chuck, size 36 × 10 ins. with demagnetizing switch.



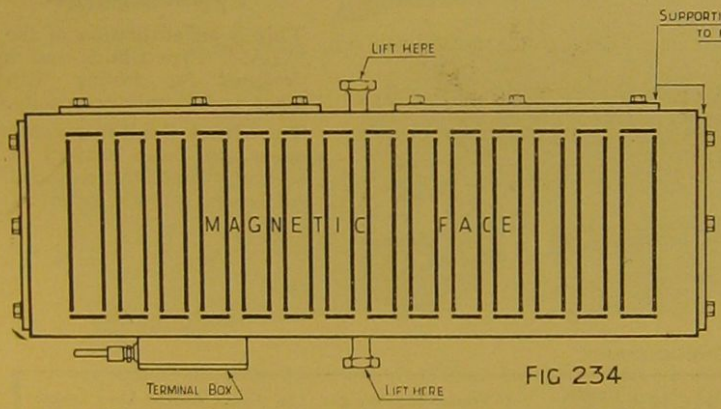


FIG 234

These Plain Chucks are suitable for use on the tables of either vertical or horizontal grinding machines, milling machine, or planer.

Delicate and fragile pieces, such as would be distorted by any other method of fixing, can be securely held without trouble from this cause, and the rapidity with which they can be handled cannot be approached by any other method.

This applies to all kinds of iron and steel articles having a flat side, such as straight edges, parallel strips, teeth for inserted tooth milling cutters, etc.

The amount of current absorbed by these Chucks is exceedingly small, and can be taken from any continuous lighting circuit or Generator Demagetizer. The Chucks can be supplied wound for any voltage from 50 to 250 **direct current,** but are **not suitable for alternating current.**

Apart from the copper of the windings, the Chucks are constructed entirely of high permeability soft steel castings and steel forgings, materials that are not cheap to buy, nor are they cheap to machine.

The "one piece" construction of the working face, which is the latest patented feature, enables us to combine on the pole face a very high magnetic capacity with positive mechanical security

Equipment supplied with all Type "F.A." Chucks includes demagnetizing switch, parallel strip, end stops, flexible cable with two-pin connector which plugs into a socket on the switch, and lifting lugs to facilitate handling.

DIMENSIONS

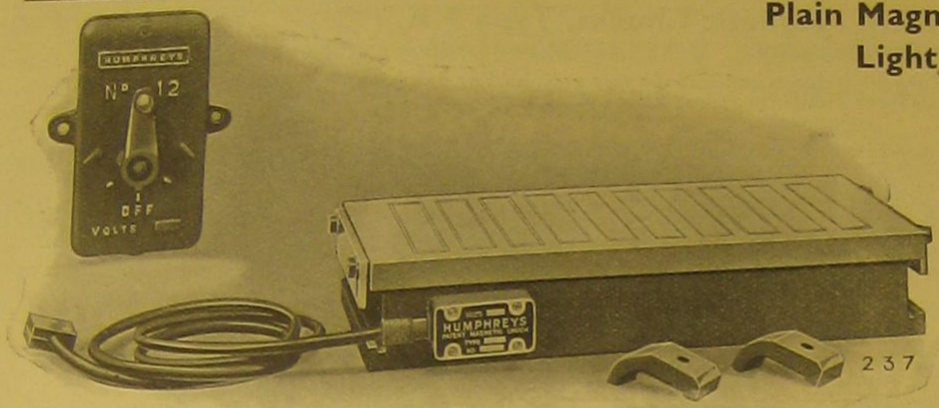
Chuck Type No.	Dimensions, Inches						Watts Used	Approx. Weight, including Switch Lbs.		Length Cable Supplied Feet
	Face Length "A"	Face Width "B"	Height "C"	Base Length "D"	Overall Width "F"	Height of Clamping Lugs "E"		Net	Gross	
FA 2713¾	23	17¾		23	21⅛		264	420	495	6
FA 2410	24	10		24	13⅜		132	253	299	6
FA 2412	24	12		24	15⅜		154	289	342	6
FA 3010	30	10		30	13⅜		175	309	366	8
FA 3012	30	12		30	15⅜		200	373	436	8
FA 3610	36	10		36	13⅜		242	363	429	8
FA 3612	36	12		36	15⅜		264	450	530	8
FA 3615	36	15		36	18⅜		275	566	666	8
FA 3624	36	24		36	27⅜		550	885	1047	8
FA 4210	42	10		42	13⅜		264	430	507	9
FA 4212	42	12		42	15⅜		308	548	660	9
FA 4215	42	15		42	18⅜		352	663	795	9
FA 4810	48	10		48	13⅜		280	489	576	9
FA 4812	48	12	4½	48	15⅜	1	330	611	733	9
FA 4815	48	15		48	18⅜		374	742	883	9
FA 4818	48	18		48	21⅜		495	913	1083	9
FA 5424	54	24		54	27⅜		700	1361	1660	10
FA 6010	60	10		60	13⅜		396	652	783	10
FA 6012	60	12		60	15⅜		440	771	923	10
FA 6015	60	15		60	18⅜		484	931	1103	10
FA 6018	60	18		60	21⅜		594	1127	1348	11
FA 6024	60	24		60	27⅜		—	—	—	11
FA 7212	72	12		72	15⅜		—	—	—	11
FA 7215	72	15		72	18⅜		635	1141	1415	11
FA 7218	72	18		72	21⅜		760	1361	1670	11
FA 8418	84	18		84	21⅜		890	1577	1820	12

PRICES ON APPLICATION.

Magnetic Chucks with swivelling body also **Chucks for holding special and difficult work, can be supplied.** Full details sent on request.

ELECTRICALLY OPERATED MAGNETIC CHUCKS

Plain Magnetic Chucks (British Made)
Light Type G.A.



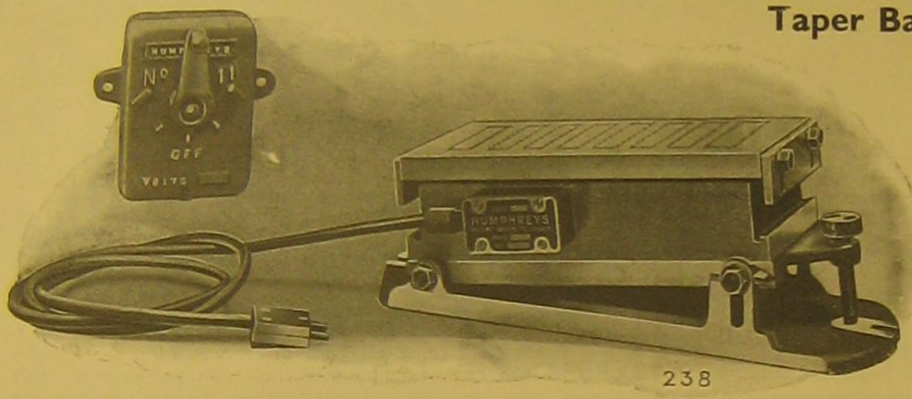
SHOWING TYPE **G.A.188** PLAIN BASE MAGNETIC CHUCK

For Direct Current only. When ordering state voltage.

These Chucks are similar to the Type FA Chucks and whilst embodying the same features are of lighter construction, having less height and no lifting lugs. They are suitable, therefore, for small size machines.

Standard equipment is the same for the F.A. models.

Taper Base Magnetic Chucks
Type T.G.A.



SHOWING TAPER BASE TYPE MAGNETIC CHUCK

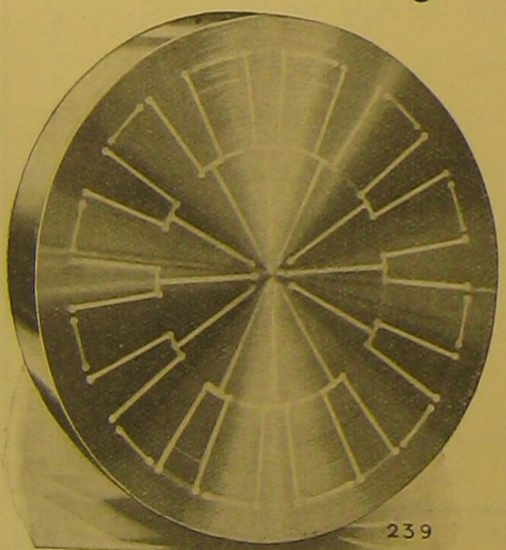
This is an adaptation of the "G.A." Type Chuck and is designed for dealing with taper work, within its capacity.

The Chuck itself is carried on a sub-base hinged at one end and with threaded adjustment screw at the other.

Supplied with standard equipment as for "G.A." Type.

Chuck Type No.		Face Dimensions Ins.	Base Dimensions Ins.		Height Ins.		Watts Used	Net Weight, Lbs.		Gross Weight, Lbs.		Length Cable Supplied Feet
Plain	Taper		Plain	Taper	Plain	Taper Closed		Plain	Taper	Plain	Taper	
G.A. 125½	T.G.A. 125½	12×5½	12×5 3/16	17×6	3¼	4¾	48	56	68	25	95	6
G.A. 156¼	T.G.A. 156¼	15×6¼	15×6	20×7	3⅜	4 15/16	60	80	105	36	134	6
G.A. 186½	T.G.A. 186½	18×6½	18×6½	23×7⅛	3⅜	4 15/16	80	99	131	45	166	6
G.A. 188	T.G.A. 188	18×8	18×7¾	23×9	3⅜	5⅛	93	122	165	55	210	6
G.A. 248	T.G.A. 248	24×8	24×7⅞	29×8⅞	3½	5½	110	163	230	74	290	6
G.A. 308	T.G.A. 308	30×8										
G.A. 368		36×8										

Small Circular Magnetic Chucks. Types O.A.A. and O.B.A.



SHOWING TYPE **O.A.A. 10½** AND **O.B.A. 10½**

Of the same general construction as the plain Magnetic Chucks the design of the pole face is adapted for holding thin rings, discs and work usually held concentrically. They are equally useful for a large variety of small pieces.

Type O.A.A. Chucks are for use on machines with a solid spindle and have the slip or contact rings attached to the back of the chuck. Current is supplied by two carbon contacts attached to an adjustable pillar.

Type O.B.A. Chucks for attaching to machines with hollow spindles are connected by a cable through the spindle to the small collector rings.

Standard equipment supplied with either type chuck includes slip rings, carbon contacts on adjustable supporting column, 6 ft. of flexible cable with plug and demagnetizing switch.

Chuck Type No.	Diam. of Face Ins.	Watts Used	Approx. Weight lbs.	
			Net	Gross
O.A.A. 6½ or O.B.A. 6½	6½	22	35	55
O.A.A. 8½ ,, O.B.A. 8½	8½	44	52	77
O.A.A. 10½ ,, O.B.A. 10½	10½	66	77	115
O.A.A. 13⅛ ,, O.B.A. 13⅛	13⅛	88	110	160

Chucks of larger diameter can be supplied. Prices sent on request.

DEMAGNETIZERS

No. D.B.1. A.C. EQUIPMENT SHOWING CUTTER ON PLATENS

Work held on the Magnetic Chuck becomes magnetized. This proves a serious drawback in subsequent operations, and to remove this magnetism a Demagnetizer is necessary.

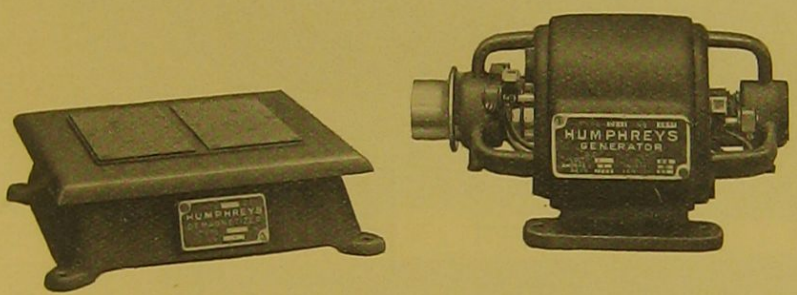
For Alternating Current only.

A Plain Demagnetizer unit only is required where an A.C. supply is available.
It can be connected to any single phase circuit, or to one phase of a two or three phase supply, and can be operated by a simple tumbler switch of sufficient capacity.
Suitable for A.C. voltages up to 250 volts. State supply when ordering.

No. D.301. D.C. DEMAGNETIZER EQUIPMENT

For Direct Current only.

The equipment for a D.C. supply is composed of a Demagnetizer, Rotary Converter, and Starter, and can be put to work anywhere.
The Rotary Converter operates off the D.C. supply by means of the Starter, and supplies alternating current to the Demagnetizer.
These sets can be arranged for use on D.C. voltages of from 50 to 250 volts only.
State voltage when ordering.



No. D.201. EQUIPMENT FOR USE WHERE NO ELECTRIC SUPPLY IS AVAILABLE

For use where no Electric Supply is available.

This equipment comprises a Demagnetizer and double current Generator. This Generator provides a continuous current for operating Chucks, etc., in addition to an alternating current for operating the Demagnetizer.
The D.C. voltage generated by these machines is 100 volts, and all chucks required to operate from this supply should be specified accordingly.

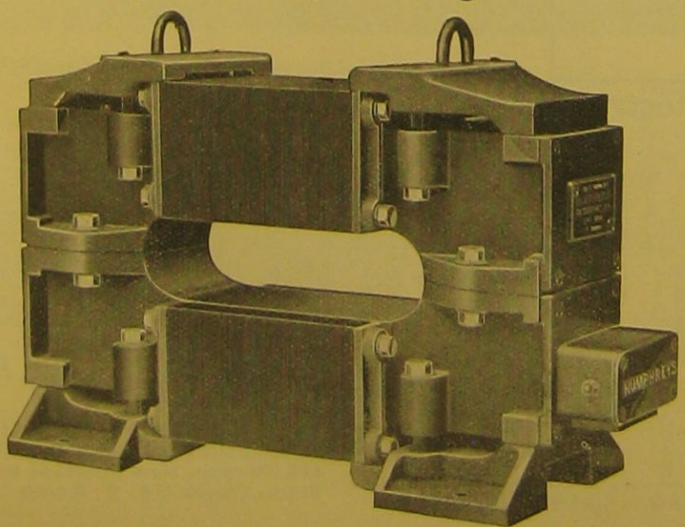
DIMENSIONS

No.	Supply	Platens Overall	Watts Absorbed	D.C. Output	Generator Pulley	Net Weight	Gross Weight
		Ins.		Watts	Ins.	lbs.	lbs.
DB 1	A.C.	$7\frac{1}{2}\times7$	60	—	—	24	40
DB 2	A.C.	$14\frac{1}{2}\times7\frac{1}{2}$	80	—	—	37	62
D 301	D.C.	$7\frac{1}{2}\times7$	180	—	—	85	121
D 302	D.C.	$14\frac{1}{2}\times7\frac{1}{2}$	300	—	—	150	215
D 201	None	$7\frac{1}{2}\times7$	—	100	$2\times1\frac{1}{2}$*	74	100
D 202	None	$7\frac{1}{2}\times7$	—	250	3×2*	128	168

*Generator speed, 1600 R.P.M.

When ordering Demagnetizers to operate on A.C. or D.C. supply, complete particulars of the supply should be given.

Aperture Type Demagnetizer



With this new unit **contact with components is not necessary, pieces are simply passed through the aperture and demagnetized practically instantaneously.**
Awkwardly shaped and unevenly thickened pieces, such as assembled inserted tooth cutters, etc., and magnetized steel parts incorporated with other metals can be rapidly and readily demagnetized on this machine.
The aluminium casing is in two pieces bolted together.
External laminated magnets incorporating Stalloy stampings substantially reduce current consumption.
Insulated sectional windings are designed to withstand very high temperatures.
The Demagnetizer can be used continuously for most work but should be operated only intermittently when wound for very high powers, for difficult materials.

Dimensions.

Size of Aperture, $7\frac{1}{2}\times2\frac{3}{4}$ ins.
Operating current, A.C., 230 volts, 50 cycles, 7 amperes.
Overall size, $21\times8\frac{3}{4}\times14$ ins. high. Approx. net weight, 140 lbs.

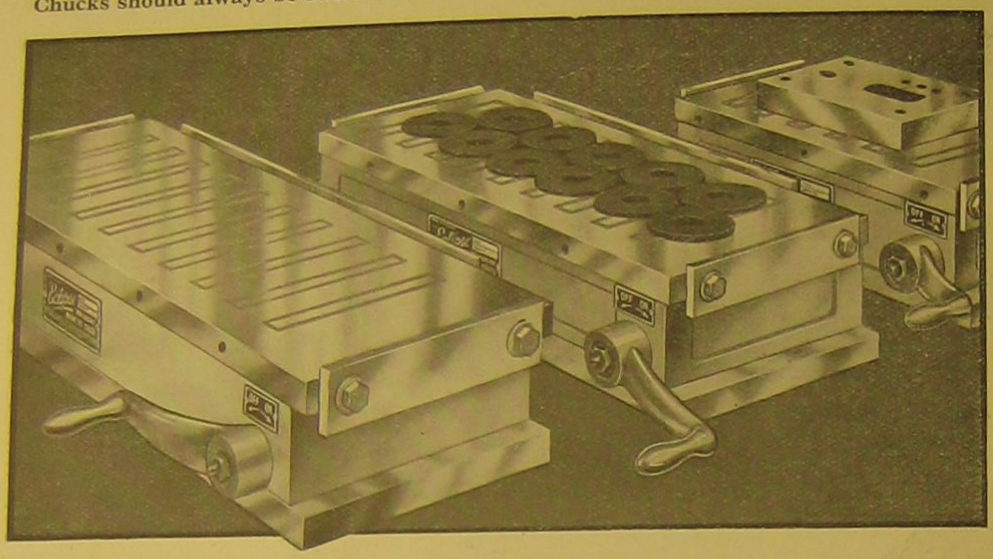
MAGNETIC CHUCKS

"Eclipse" Non-Electric Magnetic Chucks (British Made)

This trouble-free range of Magnetic Chucks, **constructed to operate without the aid of electric supply** has a very wide sphere of usefulness in lathe work, surface and cylindrical grinding for holding a multiplicity of parts and thin flat sections without distortion. Maintenance costs are eliminated.

Simplicity of operation is a particular feature—the magnets which remain permanent for an unlimited period, being brought into the energised or release positions instantly, by means of a detachable handle.

Chucks should always be switched over to energised position when not in use.

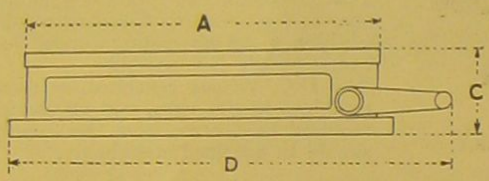


Flat Type Non-Electric Magnetic Chucks

Nos. M105 to M248

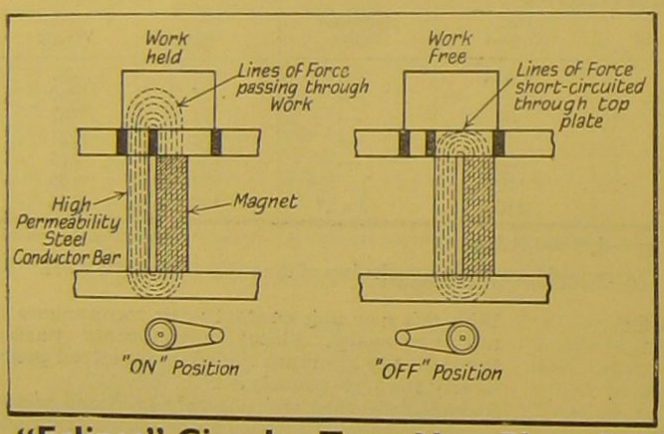
Two end stops and a back stop are provided. Tapped holes on the front of the top plate enable the back stop to be affixed to the front if necessary. Two clamps are supplied for fixing the chuck to the machine table.

Note. — As some machines are fitted with splash guards which may interfere with the manipulation of the flux control lever, a special ball handle can be fitted with a smaller E dimension.



Dimensions and Prices

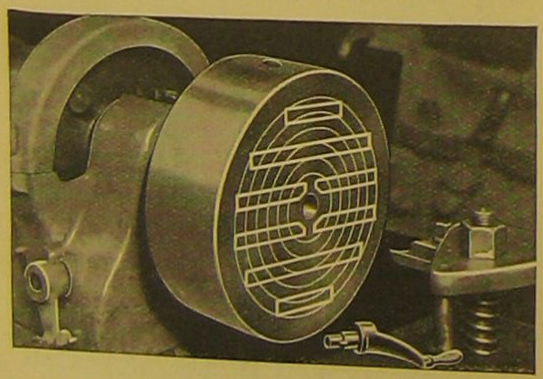
Type No.	Dimensions, Ins.					Approx. Net Weight Lbs.	Price Each Including Handle
	A	B	C	D	E		
M105	10	5	3 3/32	12	8	37	£16 0 0
M146	14	6	3 3/32	17 1/8	9 1/2	61	22 0 0
M186	18	6	3 11/32	20 1/4	8 13/16	93	27 0 0
M248	24	8	3 11/32	28 3/8	11 7/16	165	42 0 0

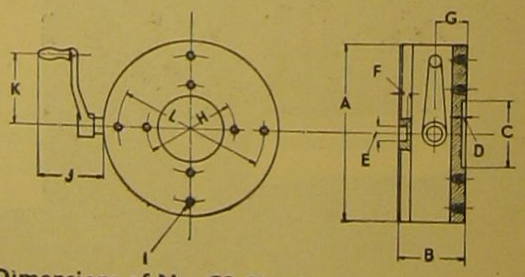


SIMPLE IN OPERATION AND DESIGN

The control of the magnetic flux is performed by a simple movement of the flux control lever through 180°, which displaces the magnets relative to the top plate. The diagram fully explains this action.

"Eclipse" Circular Type Non-Electric Magnetic Chucks, No. C9 (British Made)





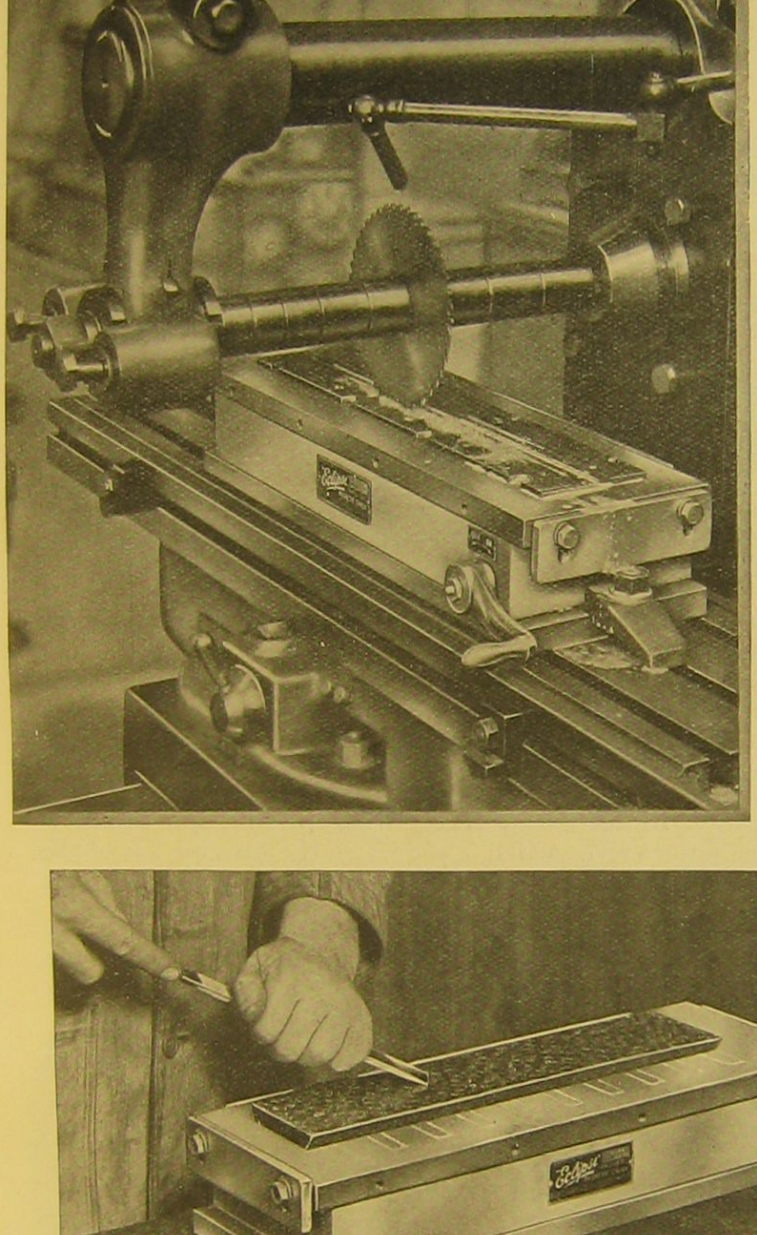
Dimensions of No. C9 Chuck

A	B	C	D	E	F
9	3 11/32	3 3/8	3/16	3/4	7/16 ins.
G	H	I	J	K	
1 9/16	4 1/2	3/8 Whit	3 3/8	3 5/8 ins.	

Lathe adaptor plates are not supplied with these chucks, but the dimensions given below will enable customers to fit the Chucks according to their requirements.

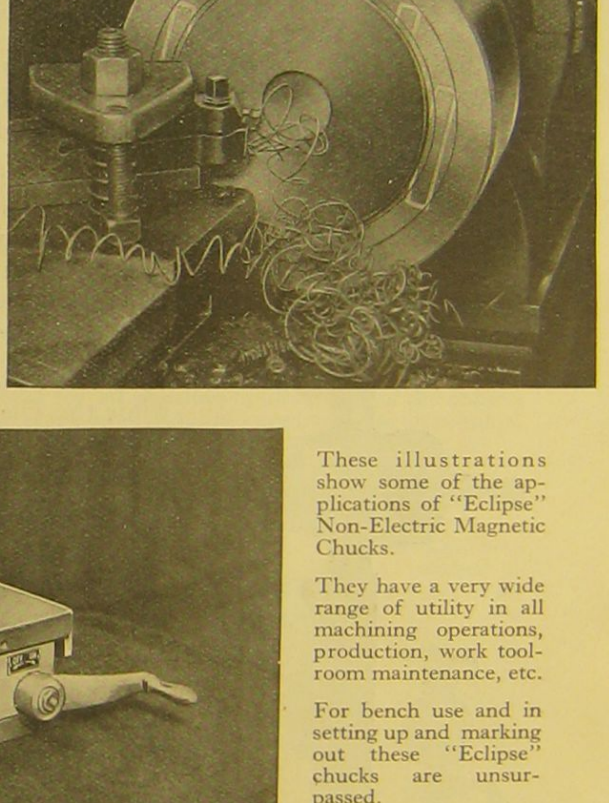
Net weight of Chuck about 15 lbs.

Price, Type No. C9 Magnetic Chuck, with operating handle £18 0 0 each, New Model 6½ in. diam. Chuck £14 0 0 each



"Eclipse" Non-Electric Magnetic Chucks

(British Made



These illustrations show some of the applications of "Eclipse" Non-Electric Magnetic Chucks.

They have a very wide range of utility in all machining operations, production, work toolroom maintenance, etc.

For bench use and in setting up and marking out these "Eclipse" chucks are unsurpassed.

Ask for full particulars.

"Eclipse" Magnetic Chuck Blocks

Type A

By placing these Blocks on the surface of an energised Magnetic Chuck the path for the available flux is extended to the upper and **end** surfaces of the magnetic block. **Parts with awkward projections** and otherwise impossible magnetic chucking subjects can thus be securely held.

Type A, Size $3 \times 2\frac{7}{16} \times 1\frac{1}{4}$ ins., Weight 5 lbs. **Price £2 15 0 per pair.**

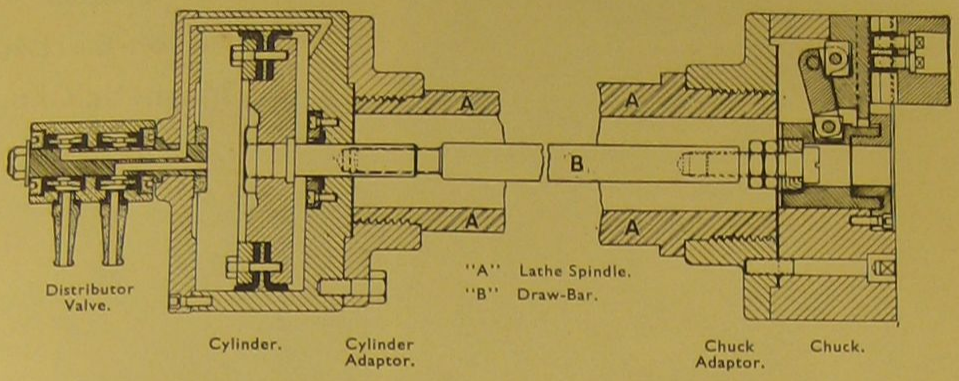
"Eclipse" Demagnetizers, Type DA

As work held on magnetic chucks itself becomes partly magnetized a demagnetizer becomes necessary and will be found indispensable in toolrooms and machine shops.

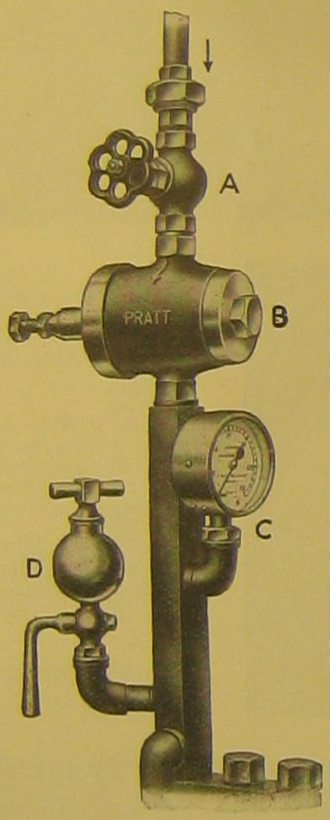
Length, "B" $6\frac{1}{4}$ ins:
Width "A" $4\frac{5}{8}$ ins:
Depth, "C" $3\frac{5}{8}$ ins:
Weight, 7 lbs.

Price Type DA Demagnetizer with 6 ft. of flexible cable **£5 0 0**

Pratt Air Chucking Equipment (British Made)



A Complete Air-operated Chucking Equipment, for fitment to any class of lathe, comprises Chuck, Cylinder, Control Valve, Stop Valve, Reducing Valve, Dial Pressure Gauge and Lubricator. The Control Valve may be either hand or foot operated.



The Chuck is mounted on the front end of the machine spindle in the same manner as an ordinary chuck, by means of an intermediate adaptor, and is shown on the right hand of the illustration above. The Cylinder is similarly mounted to the rear end of the spindle; sometimes it is necessary to extend the neck of the adaptor, in order to clear the driving pulley guard of the machine or some other obstruction.

The Chuck and Cylinder rotate freely with the machine spindle, while the Distributor Valve, which is shown on the extreme left of the illustration above, remains stationary. A draw-rod connects the Chuck to the Cylinder.

The Chuck Jaws are actuated by toggles engaging with a sleeve in the centre of the chuck; as this sleeve is pushed forward or pulled back by the draw-rod, the jaws of the Chuck open and close.

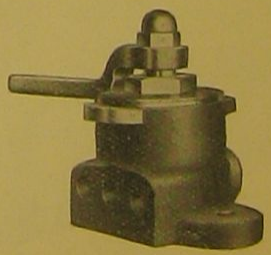
To grip or remove work, a mere touch of the hand on the control lever, or of the foot in the case of a foot-operated valve, is sufficient. By the elimination of a chuck key and the time taken in winding jaws in and out, much non-productive time is saved; also on cylindrical work the necessity of stopping the machine to remove or chuck work is obviated.

The left-hand illustration shows the arrangement of the Stop Valve (A), the Reducing Valve (B), the Dial Pressure Gauge (C), and the Lubricator (D).

The air supply should be brought in from the main air line in the direction of the arrow at the top of the illustration. The function of the Stop Valve is to cut off air pressure from the equipment when adjustments are being made.

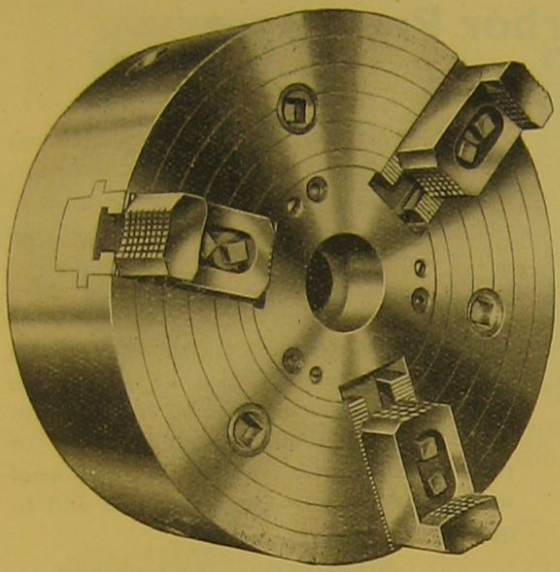
By turning the thumb-screw on the Reducing Valve, the pressure can be regulated instantaneously as desired, thus permitting a less heavy grip on light work. The Dial Pressure Gauge records the pressure coming in from the main supply line, in pounds per square inch, and the Lubricator should be kept full of oil and used frequently, as this is the only means of lubricating the Air Cylinder.

Assembling an equipment on the average machine presents no particular difficulty, and reference to the illustration above will show the simplicity of the general arrangement.

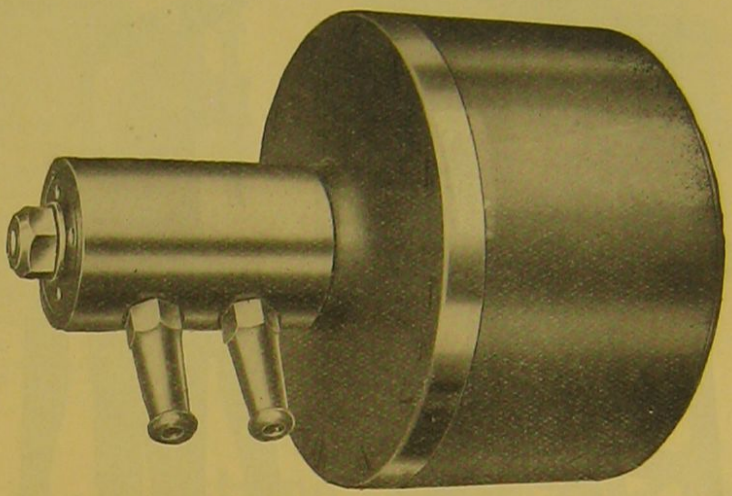


Control Valve for Hand Operation.

Pratt Air Chucking Equipment (British Made)



3-JAW ALL-STEEL AIR CHUCK



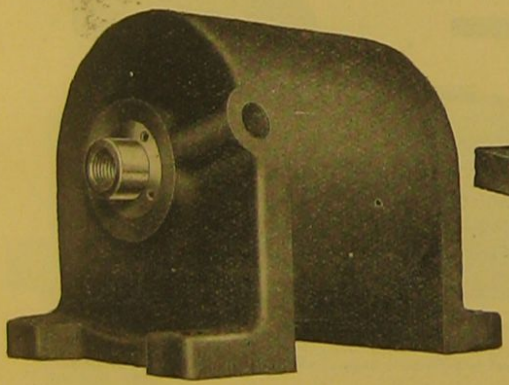
DOUBLE-ACTING ROTATING AIR CYLINDER

Pratt 3-Jaw Air Chucks are made in the following sizes:—6, 7, 9, 12, 15, 18, and 24 ins. diameter. The Air Cylinder size is determined by the Cylinder bore, and the following stock sizes are available:—4½, 6, 8, 10, 12, 16, and 20 ins. diameter bore.

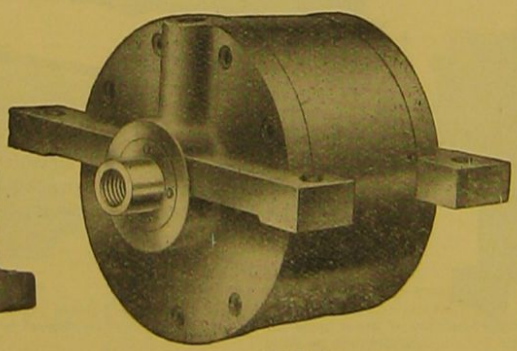
The many special adaptions of air chucking do not permit the subject to be fully treated in this catalogue. A large variety of designs of special chucks are available. These cover a large range of requirements and permit many jobs to be done for which the standard chucks shown are not suitable. Chucks can be supplied with increased jaw travel or with specially compensated jaws, or in many cases quite a simple fixture can be mounted to the spindle nose for operating by an Air Cylinder, to surmount difficulties presented in gripping the most intricate job.

Against inquiry, blueprints and quotations will be submitted for all possible applications of air chucking, and complete catalogues are available on request.

Pratt Stationary Air Cylinders (British Made)



MODEL No. 1



MODEL No. 2

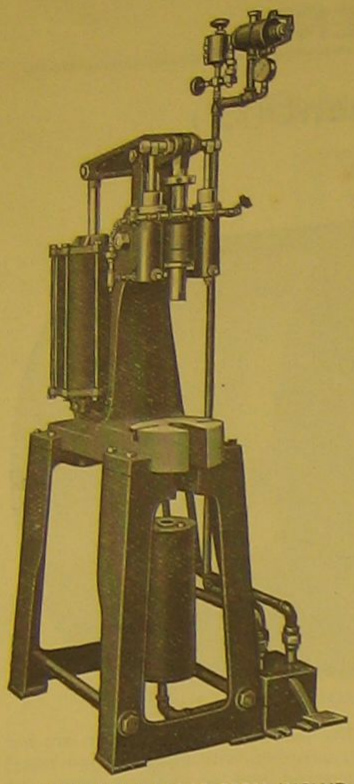
Pratt Stationary Air Cylinders are available in a number of models, two of which are illustrated on this page. The various shapes of Cylinder Body available as standard will cover nearly all the different types of machines and fixtures on which these Cylinders can be used. The length of piston stroke is standardised at 1 inch, but may be increased to any length as desired.

Further particulars and complete catalogue giving dimensions and other data are available on request.

SIZES AND PRICES

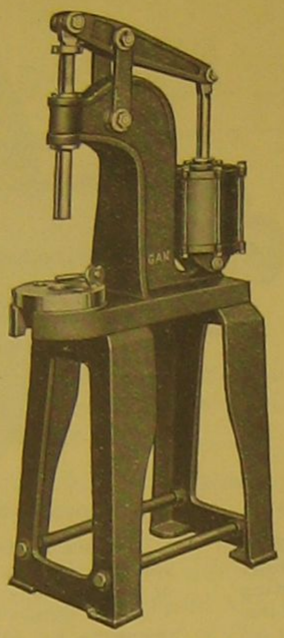
Size diam. of Internal Bore ins.	Power exerted in lbs. at Pressures			Price, each Models 1 to 6 with 1-inch Stroke	Add per inch or fraction of inch of Stroke
	60 lbs.	80 lbs.	100 lbs.		
2	188	251	314	£13 19 0	£0 10 6
2½	294	392	490	14 8 9	0 11 3
3	424	565	706	15 8 6	0 11 10
4½	954	1,272	1,509	16 10 0	0 13 0
6	1,694	2,261	2,878	18 16 9	0 14 10
8	3,015	4,021	5,026	22 16 0	0 17 0
10	4,712	6,283	7,854	27 8 0	0 19 9
12	6,786	9,048	11,310	32 13 0	1 3 6
14	9,236	12,315	15,394	44 2 9	1 10 3
16	12,064	16,085	20,106	—	—
20	18,846	25,132	31,416	—	—

Logansport Air-Operated Arbor Presses (Made in U.S.A.)



No. 3 SERIES "A" ARBOR PRESS, INCLUDING OIL-CUSHIONING FEATURE.

Series "A" Presses are made in ten standard sizes, ram pressures ranging 2,500 to 57,700 lbs.



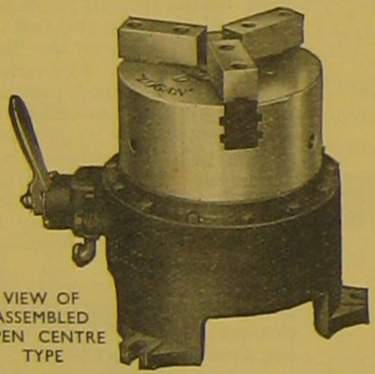
ARBOR PRESS WITH SPECIAL SHORT-STROKE CYLINDER AND WORK FIXTURE.

More than twelve years of concentrated and specialised effort is behind Logansport Air-Operated Equipment, and has resulted in the production of a most comprehensive range in this particular field.

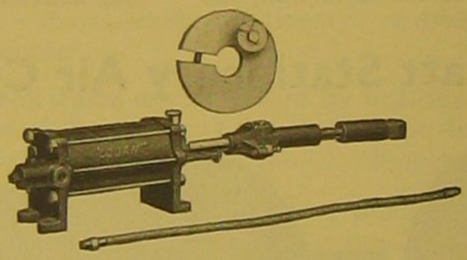
Space in this Catalogue does not permit showing more than a selection of "Logan" Air-Operated devices, but the illustrations will give an idea of its wide application and merits. **Upon receipt of customers' requirements we shall be pleased to submit suggestions and send makers' full illustrated catalogue and to quote prices.**

Special devices:—The makers of "Logan" Equipment are prepared to design and manufacture special air or fluid operated devices for every work-holding requirement.

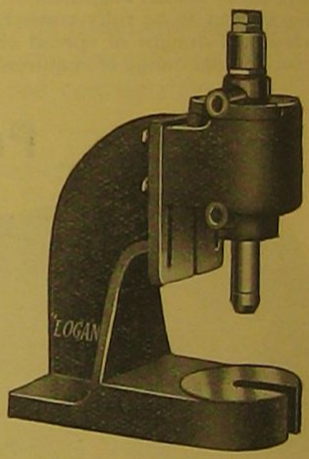
Logansport Drill Press Chucking Device



VIEW OF ASSEMBLED OPEN CENTRE TYPE



COMPLETE ASSEMBLY WORK EJECTING AIR COMPRESSOR FOR PUNCHING PRESSES AND OTHER MACHINES.

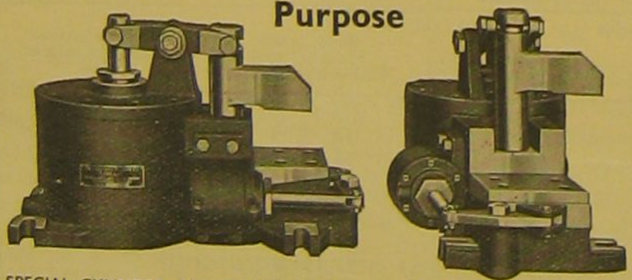


SERIES "C" ARBOR PRESS.

Furnished in two standard sizes, ram pressure 565 and 1272 lbs.

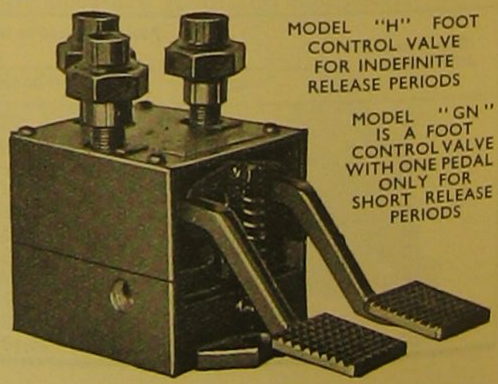
Special as required.

Logansport Special Cylinders for Every Purpose



SPECIAL CYLINDER AND WORK CLAMPING DEVICE COMBINED

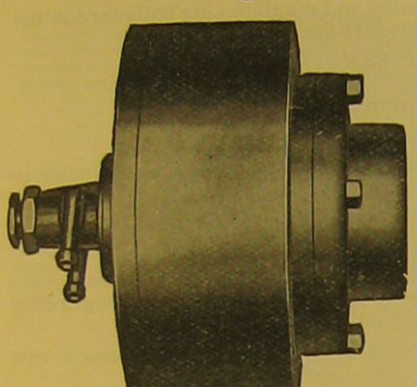
Logansport Foot Control Valves



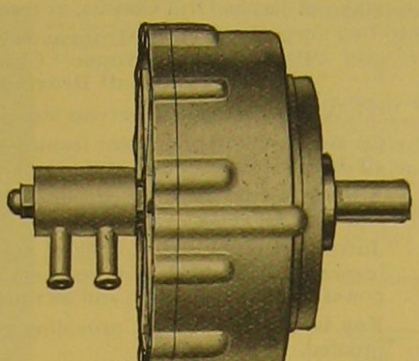
MODEL "H" FOOT CONTROL VALVE FOR INDEFINITE RELEASE PERIODS

MODEL "GN" IS A FOOT CONTROL VALVE WITH ONE PEDAL ONLY FOR SHORT RELEASE PERIODS

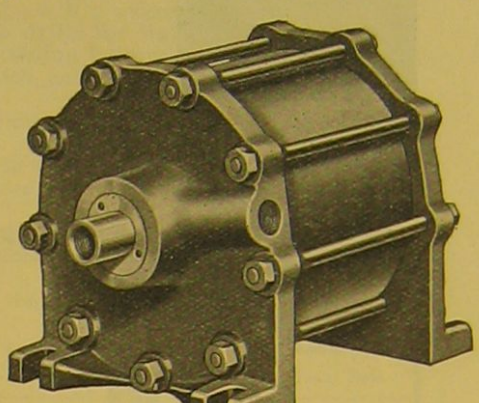
Logansport Double-Acting Cylinders (Made in U.S.A.)



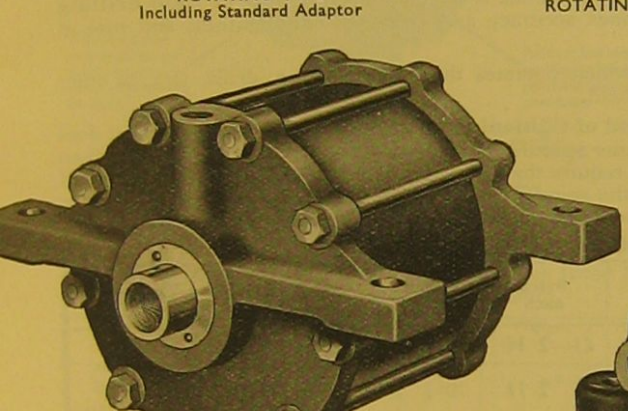
ASSEMBLED VIEW MODEL "R" CYLINDER
ROTATING TYPE
Including Standard Adaptor



ASSEMBLED VIEW MODEL "K"
Not including Adaptor
ROTATING TYPE—ALUMINIUM



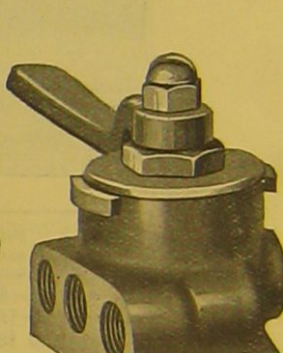
ASSEMBLED VIEW MODEL "B"
NON-ROTATING TYPE



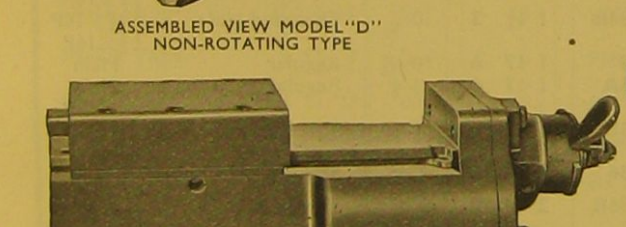
ASSEMBLED VIEW MODEL "D"
NON-ROTATING TYPE

Logansport Hand Control Operating Valves (Made in U.S.A.)

MODEL "P" POPPET TYPE



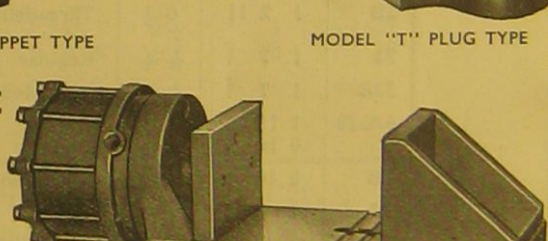
MODEL "T" PLUG TYPE



ASSEMBLED VIEW No. 1 MILLING VICE
Height of vice is uniform, no obstruction to prevent passing cutter over its entire length. It can be located crosswise or lengthwise on the machine table.

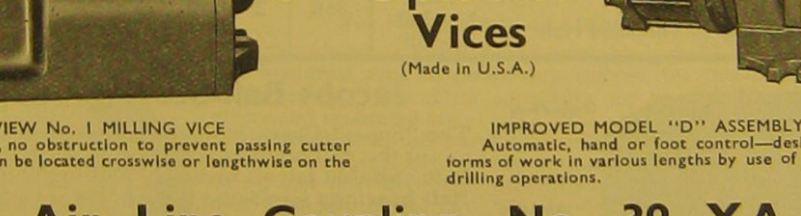
Logansport Air-Operated Vices

(Made in U.S.A.)



IMPROVED MODEL "D" ASSEMBLY AND DRILLING VICE
Automatic, hand or foot control—designed for holding diversified forms of work in various lengths by use of false jaws, for assembling or drilling operations.

VLC Air Line Coupling, No. 39 XA (British Made)



This coupling is a great "time-saver." The plug portions with $\frac{3}{8}$ inch male connections, are screwed into various points of the compressed air line system. The rubber-armoured sockets with $\frac{1}{4}$ inch swivel hose connectors, are for attaching to the different Air-operated Tools.

To effect connection, these sockets are simply pressed on to the plugs; they are held in position by means of a spring loaded key, engaging either of the two grooves. The first groove enables the coupling to be connected idly, whilst on engagement with the second, the air-line is opened.

Instantly released by pressing button—when non-return valve, incorporated in plug, automatically closes air supply.

Weight 14 ozs. **Price 6/9**

DRILL CHUCKS

Jacobs Drill Chucks (Made in U.S.A.)

Accuracy, gripping power, speedy operation and durability are embodied in the range of Jacobs Drill Chucks, in three standardised models:—

Plain Bearing "Improved" Chuck.
Ball Bearing "Super" Chuck.
Keyless Type Ball Bearing "Portomatic" Chuck.

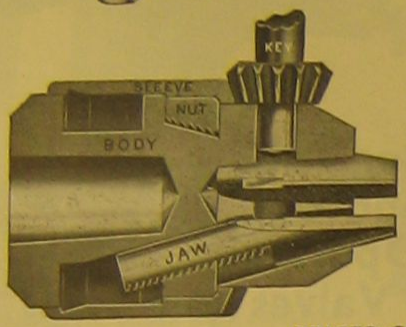
(1) Which are made in various sizes and capacities shown.

(2) Amongst the prominent features which make Jacobs Chucks so suitable to all drilling purposes and capacities are:—

A body hardened to the proper degree to provide perfect jaw and key bearing and to resist abuse.

Jaws and Nuts are of special steel so heat-treated as to be practically unbreakable. **The type of thread** employed gives greater strength and gripping power, minimum friction and increased operating speed.

Key is of new design, providing good grip and greater leverage and is rust proofed.



Jacobs Plain Bearing "Improved" Chuck

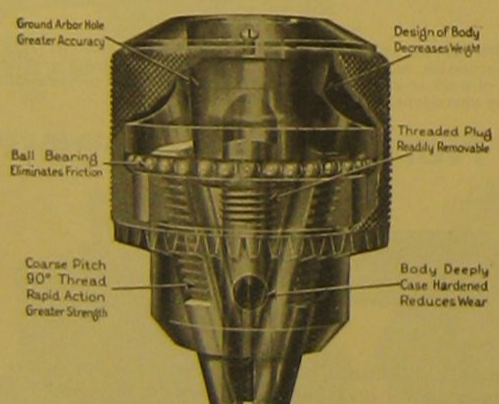
The Jacobs Improved Drill Chuck is designed for **portable or light drilling machines** and combines accuracy and strength with lightness and ease of operation.

By means of the key, which operates the toothed sleeve, drills, taps, or other tools may be securely held.

This superior method of tightening or releasing the chuck, since it does not revolve the machine spindle, is far more effective and convenient than other methods, which require the use of one hand for operating the chuck and the other for holding the spindle. The entire range of improved chucks has taper arbor hole and some of the sizes can be supplied for threaded arbor.

PRICES OF JACOBS "IMPROVED" MODEL CHUCKS

No.	Price each.	Capacity ins.	Style	Taper Hole
0	£1 5 0	0–$\frac{1}{8}$	Regular	Plain
1A	0 18 9	0–$\frac{1}{4}$	"	"
1B	0 18 9	0–$\frac{1}{4}$	Threaded Hole	$\frac{3}{8}\times24$P
2A	1 2 11	0–$\frac{3}{8}$	Regular	Plain
2B	1 2 11	0–$\frac{3}{8}$	Threaded Hole	$\frac{3}{8}\times24$P $\frac{1}{2}\times20$P $\frac{5}{8}\times16$P
33	1 7 1	$\frac{1}{16}$–$\frac{1}{2}$	Regular	Plain
33B	1 7 1	$\frac{1}{16}$–$\frac{1}{2}$	Threaded Hole	$\frac{1}{2}\times20$P $\frac{5}{8}\times16$P
6A-33	1 11 3	0–$\frac{1}{2}$	Regular	Plain
7	0 18 9	0–$\frac{1}{4}$	Regular	Plain
7B	0 18 9	0–$\frac{1}{4}$	Threaded Hole	$\frac{3}{8}\times24$P $\frac{1}{2}\times20$P
30	1 2 11	0–$\frac{5}{16}$	Regular	Plain
30B	1 2 11	0–$\frac{5}{16}$	Threaded Hole	$\frac{3}{8}\times24$P $\frac{1}{2}\times20$P
32	£1 2 11	0–$\frac{3}{8}$	Regular	Plain
32B	1 2 11	0–$\frac{3}{8}$	Threaded Hole	$\frac{1}{2}\times20$P $\frac{5}{8}\times16$P $\frac{11}{16}\times16$P
34	1 11 3	0–$\frac{1}{2}$	Regular	Plain
34B	1 11 3	0–$\frac{1}{2}$	Threaded Hole	$\frac{5}{8}\times16$P $\frac{11}{16}\times16$P $\frac{3}{4}\times16$P
3	1 17 6	0–$\frac{17}{32}$	Regular	Plain
3A	1 17 6	$\frac{1}{8}$–$\frac{5}{8}$	Regular	Plain
3B	1 17 6	$\frac{1}{8}$–$\frac{5}{8}$	Threaded Hole	$\frac{5}{8}\times16$P $\frac{11}{16}\times16$P $\frac{3}{4}\times16$P
36	2 10 0	$\frac{3}{16}$–$\frac{3}{4}$	Regular	Plain
36B	2 10 0	$\frac{3}{16}$–$\frac{3}{4}$	Threaded Hole	$\frac{5}{8}\times16$P $\frac{3}{4}\times16$P



For General Dimensions and Prices of Spare Parts of Jacobs Chucks, see page 22.

Jacobs Ball-bearing "Super" Chuck

The "Super" Chuck is similar in design to the other Jacobs Chucks, except that ball bearings enter into its construction.

It is suitable for all ordinary drilling and machine work.

Ball bearings introduced between the nut and body eliminate friction, give greater gripping power, easy and quick operation, and for ordinary drilling and tool work the "Super" Chuck can be tightened by hand without using the key.

All parts are completely hardened and the body is ground true on every surface to half a thousandth of an inch; this ensures a most accurate and reliable chuck with great gripping power.

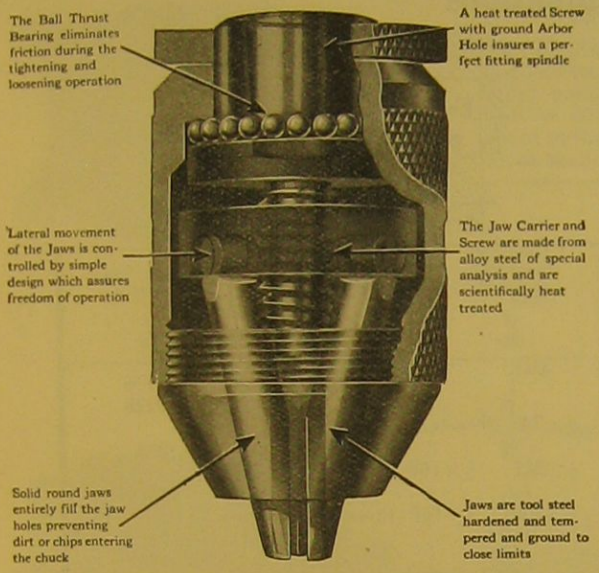
Prices of Jacobs "Super" Model Chuck

No.	Price each	Capacity Ins.	Style	Taper Hole
8½	£1 5 0	0–$\frac{1}{4}$	Regular	Plain
9	1 9 2	0–$\frac{5}{16}$	"	"
11	1 13 4	0–$\frac{3}{8}$	"	"
14	2 1 8	0–$\frac{1}{2}$	"	"
16	2 12 1	$\frac{1}{16}$–$\frac{5}{8}$	"	"
18	3 2 6	$\frac{1}{16}$–$\frac{3}{4}$	"	"
20	4 3 4	$\frac{3}{8}$–1	"	"

These chucks have a screw in the body which can be removed for inserting rods, bars, etc.

DRILL AND TAPPING CHUCKS

Jacobs Keyless Type "Portomatic" Chuck (Made in U.S.A.)


The Ball Thrust Bearing eliminates friction during the tightening and loosening operation
A heat treated Screw with ground Arbor Hole insures a perfect fitting spindle
Lateral movement of the Jaws is controlled by simple design which assures freedom of operation
The Jaw Carrier and Screw are made from alloy steel of special analysis and are scientifically heat treated
Solid round jaws entirely fill the jaw holes preventing dirt or chips entering the chuck
Jaws are tool steel hardened and tempered and ground to close limits

For General Dimensions and Prices of spare parts, see page 22.

The "Portomatic" Chuck is a model particularly **designed for use on portable drills for light drilling where the keyless or self-tightening feature is desirable.** It has a tremendous grip which automatically tightens as the load increases.

The Drill is easily released from the chuck's hold by a twist of the knurled sleeve.

Simply and sturdily constructed from finest alloy steel, the Jacobs high standard of accuracy is maintained in this new Chuck.

Ball-thrust bearings are fitted to eliminate friction, and the jaws are of tool steel, hardened, tempered, and ground to close limits.

Collars for holding the spindle are furnished as standard equipment.

No.	Price each	Capacity ins.	Style	Taper Hole
250	£1 0 10	0–$\frac{1}{4}$	Regular	Plain
250B	1 0 10	0–$\frac{1}{4}$	Threaded Hole	$\frac{3}{8}\times24$P $\frac{1}{2}\times20$P
312	1 5 0	0–$\frac{5}{16}$	Regular	Plain
312B	1 5 0	0–$\frac{5}{16}$	Threaded Hole	$\frac{3}{8}\times24$P $\frac{1}{2}\times20$P
375	1 5 0	0–$\frac{3}{8}$	Regular	Plain
375B	1 5 0	0–$\frac{3}{8}$	Threaded Hole	$\frac{1}{2}\times20$P $\frac{5}{8}\times16$P
500	2 1 8	$\frac{1}{16}$–$\frac{1}{2}$	Regular	Plain
500B	2 1 8	$\frac{1}{16}$–$\frac{1}{2}$	Threaded Hole	$\frac{5}{8}\times16$P

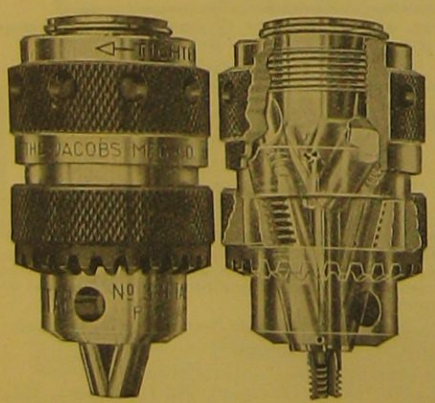
Special Models

Jacobs Chucks termed "Special" Models and as listed below can be furnished when desired, but it is the manufacturers' intention to discontinue them as soon as possible.

No.	Price each	Capacity ins.	Weight lbs. ozs.	Taper ins.	No.	Price each	Capacity ins.	Weight lbs. ozs.	Taper ins.
7-1A Taper	£0 18 9	0–$\frac{1}{4}$	– 7	·9228	6B Threaded	1 11 3	0–$\frac{1}{2}$	1 3	$\frac{1}{2}\times24$P
250-1A Taper	1 0 10	0–$\frac{1}{4}$	– 12	·9228	6B Threaded for Electric Bench Grinder	1 11 3	0–$\frac{1}{2}$	1 3	$\frac{1}{8}\times13$P
2A-D Taper	1 2 11	0–$\frac{3}{8}$	– 13	·9575	3B Threaded do.	1 17 6	$\frac{1}{8}$–$\frac{5}{8}$	2 2	$\frac{5}{8}\times11$P
6A-2A Taper	1 11 3	0–$\frac{1}{2}$	1 3	·978	3A-E Taper	1 17 6	$\frac{1}{8}$–$\frac{5}{8}$	2 1	·624
6A-E Taper	1 11 3	0–$\frac{1}{2}$	1 4$\frac{1}{2}$	·624	36E Taper	2 10 0	$\frac{3}{16}$–$\frac{3}{4}$	2 12	·624

Jacobs Positive Drive Tap Chuck (Made in U.S.A.)

For Heavy Duty or Light Sensitive Tapping



The tap shank is rigidly and accurately held by the front jaws, whilst the squared end is positively driven by the back jaws, the floating construction of the chuck correcting any error in concentricity between the shank and square on tap.

The chuck may be hand operated for light tapping, and for heavy-duty work the geared sleeve and key are provided.

All parts are hardened and ground and arbor holes are interchangeable with Standard Jacobs Drill Chucks.

No.	Hand Tap, Capacity, ins.	Shank, Capacity, ins.	Weight ozs.	Length ins.	Diam. ins.	Morse Taper No.	Price each
255	0–$\frac{1}{4}$	·141–·255	7	2$\frac{1}{4}$	1$\frac{3}{16}$	1	£1 5 0
*318	0–$\frac{5}{16}$	·141–·318	9	2$\frac{1}{2}$	1$\frac{7}{16}$	2	1 9 2
381	$\frac{1}{32}$–$\frac{1}{2}$	·194–·381	13	2$\frac{7}{8}$	1$\frac{9}{16}$	2	1 17 6

*No. 318 Chuck will hold $\frac{3}{8}$-in. small size Shank Taps.

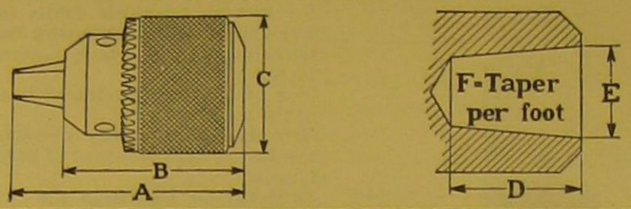
Prices of Spare Parts for Tap Chuck

Chuck No.	Front Jaws and Nuts per Set	Back Jaws	Front Sleeve	Back Sleeve	Key
	s. d.	s. d.	s. d.	s. d.	s. d.
255	8 4	4 2	2 1	2 1	1 3
318	9 5	5 0	2 6	2 6	1 8
381	10 5	5 10	2 11	2 11	1 8

DRILL CHUCKS

Jacobs Standard Model Chucks

General Dimensions



	No.	Weight lbs.	Weight ozs.	Length A ins.	Length B ins.	Diam. C ins.	Depth of Taper Hole in Chuck D ins.	Diam. Hole at End of Body E ins.	Approx. Taper per foot F ins.
"Improved"	0	–	2	1 5/16	1 1/8	7/8	1/2	·2506	·5976
	1A	–	4½	1 13/16	1 7/16	1 3/16	11/16	·3846	·9228
	1B	–	4½	1 13/16	1 7/16	1 3/16	3/8 × 24P Threaded Arbor Hole		
	2A	–	15	2 9/16	1 15/16	1 11/16	15/16	·5603	·978
	2B	–	13	2 9/16	1 15/16	1 11/16	1/2 × 20P 5/8 × 16P Threaded Arbor Hole		
	33	1	0	3 1/16	2 9/32	1 3/4	1 1/16	·625	·750
	33B	–	15	2 15/16	2 9/32	1 3/4	1/2 × 20P 5/8 × 16P Threaded Arbor Hole		
	6A-33	1	3	3 3/8	2 17/32	1 15/16	1 1/16	·625	·750
	7	–	7	2 7/32	1 25/32	1 11/32	15/16	·5603	·978
	7B	–	7	2 1/8	1 31/32	1 11/32	3/8 × 24P 1/2 × 20P Threaded Arbor Hole		
	30	–	8½	2 3/8	1 7/8	1 7/16	15/16	·5603	·978
	30B	–	8	2 1/4	1 3/4	1 7/16	3/8 × 24P 1/2 × 20P Threaded Arbor Hole		
	32	1	0	2 7/8	2 1/4	1 3/4	15/16	·5603	·978
	32B	–	15	2 3/4	2 1/4	1 3/4	1/2 × 20P 5/8 × 16P 45/64 × 16P Threaded Arbor Hole		
	34	1	11	3 5/16	2 19/32	2 1/16	1 1/16	·6761	·6216
	34B	1	9	3 5/16	2 19/32	2 1/16	5/8 × 16P 45/64 × 16P 3/4 × 16P Threaded Arbor Hole		
	3	2	0½	3 5/8	2 3/4	2 5/16	1 9/32	·8114	·6372
	3A	2	0½	3 5/8	2 5/8	2 5/16	1 9/32	·8114	·6372
	3B	2	2	3 5/8	2 5/8	2 5/16	5/8 × 16P 45/64 × 16P 3/4 × 16P Threaded Arbor Hole		
	36	2	12	3 31/32	3 1/32	2 9/16	1 9/32	·8114	·6372
	36B	2	12	3 31/32	3 1/32	2 9/16	5/8 × 16P 3/4 × 16P Threaded Arbor Hole		
"Super"	8½	–	9	2 3/8	1 15/16	1 1/2	15/16	·5603	·978
	9	–	15	2 13/16	2 1/4	1 3/4	15/16	·5603	·978
	11	1	1	2 7/8	2 9/32	1 7/8	15/16	·5603	·978
	14	2	1	3 13/16	2 21/32	2 3/8	1 9/32	·8114	·6372
	16	2	14	4 1/2	3 1/4	2 9/16	1 9/32	·8114	·6372
	18	4	2	5	3 3/4	2 15/16	1 13/16	1·1235	·6264
	20	6	10	5 3/8	4 3/16	3 9/16	2	1·4127	·6228
"Portomatic"	250	–	12	2 25/32	2 13/32	1 11/32	15/16	·5603	·978
	250B	–	12	2 25/32	2 13/32	1 11/32	3/8 × 24P 1/2 × 20P Threaded Arbor Hole		
	312	–	15	3 3/32	2 19/32	1 1/2	15/16	·5603	·978
	312B	–	15	3 3/32	2 19/32	1 1/2	3/8 × 24P 1/2 × 20P Threaded Arbor Hole		
	375	1	7	3 5/8	3	1 3/4	15/16	·5603	·978
	375B	1	7	3 5/8	3	1 3/4	1/2 × 20P 5/8 × 16P Threaded Arbor Hole		
	500	2	3	4 5/16	3 5/8	2 1/16	1 1/16	·6761	·6216
	500B	2	3	4 5/16	3 5/8	2 1/16	5/8 × 16P Threaded Arbor Hole		

Price List of Spare Parts for Standard Models

Chuck No.	Jaws & Nuts Per Set	Sleeves Each	Keys Each
"Improved" Chucks			
0	9/5	2/6	1/3
1A & B	7/4	2/1	1/3
2A & B	9/5	2/6	1/8
3, 3A, 3B	13/7	3/9	2/1
7, 7B	7/4	2/1	1/3
30, 30B	9/5	2/6	1/8
32, 32B	9/5	2/6	1/8
33, 33B	10/5	2/6	1/8
6A-33	11/6	3/9	2/1
34, 34B	11/6	3/9	2/1
36, 36B	17/9	5/-	3/2

Chuck No.	Jaws & Nuts Per Set	Sleeves Each	Keys Each	Balls Per Set
"Super" Chucks				
8½	9/5	2/6	1/8	1/3
9	11/5	3/2	1/8	1/11
11	12/6	3/2	1/8	1/11
14	13/7	3/9	2/1	2/6
16	17/9	5/-	3/2	3/2
18	21/11	6/3	3/2	3/2
20	31/3	9/5	5/3	3/9

Chuck No.	Jaws	Screws	Collars	Carriers	Balls Per Set
"Portomatic" Chucks					
250	5/3	4/2	2/1	3/2	1/3
312	6/3	5/3	2/1	4/2	1/11
375	6/3	5/3	2/1	4/2	1/11
500	10/5	8/4	4/2	6/3	2/6

Nuts, Jaws, and Sleeves are interchangeable on "Regular", "A" and "B" Models of the same Chuck.

Note.—Chucks with letter affixed to number require same parts as plain numbers.

Prices of Accurately Ground Morse Taper Arbors, Shanks, or Plugs for all sizes Jacobs Chucks

	Each
Morse Taper Arbor No. 0... ...	6/3
,, ,, ,, ,, 1... ...	3/4
,, ,, ,, ,, 2... ...	3/4
,, ,, ,, ,, 3... ...	5/-
,, ,, ,, ,, 4... ...	8/4
,, ,, ,, ,, 5... ...	14/7

Note.—The Model B Chucks, with Threaded Arbor Hole, are intended for screwing direct on to the drilling spindle, but threaded arbors can be furnished if required. Prices on application.

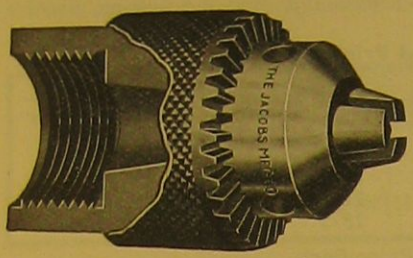
Arbors are interchangeable in the following models:

Series **Chucks**

No. 0—No. 0.
No. 1—No. 1A, 7 (1A taper), 250 (1A taper), 255.
No. 2—No, 2A, 6A-2A, 7, 30, 32, 8½, 9, 11, 250, 312, 375,
No. 3—No. 3, 3A, 14, 16, 36. [318, 381.
No. 4—No. 18.
No. 5—No. 20.
No. 6—No. 34, 500.
No. 33—No. 33, 6A-33.

LATHE CHUCKS

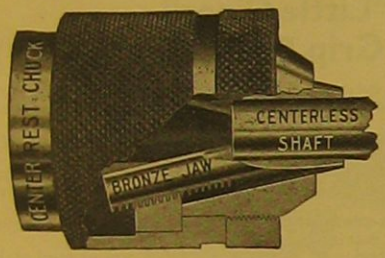
Jacobs Chucks for Lathe Use (Made In U.S.A.)



Headstock Chucks No. 58B and 59B

The Headstock Chuck is made to thread directly to the spindles of several small lathes. It is extremely accurate, and convenient to use, replacing expensive collet equipment yet accomplishing substantially the same results. **The hollow construction makes it possible to chuck long pieces** extending in to the spindle of the lathe. When combined with a tool post grinder, this chuck makes ideal equipment for valve refacing on the lathe.

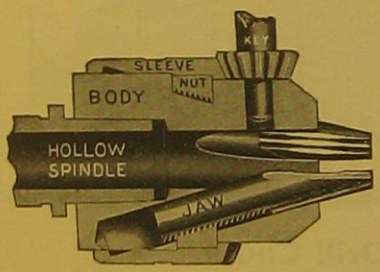
No.	Price Each	Extra Jaws and Nuts Per Set	Extra Sleeves Each	Extra Keys Each	Capacity Ins.	Style	Taper Hole
58B	£2 10 0	13/7	5/3	2/1	$\frac{1}{8}$–$\frac{5}{8}$	Threaded	$1\frac{3}{8}$″ × 10p $1\frac{3}{8}$″ × 8p $1\frac{1}{2}$″ × 8p
59B	£3 2 6	17/9	6/3	3/2	$\frac{3}{16}$–$\frac{3}{4}$	Threaded	$1\frac{1}{2}$″ × 8p $1\frac{5}{8}$″ × 8p $1\frac{3}{4}$″ × 8p $1\frac{7}{8}$″ × 8p



Centre Rest Chuck No. 100

The Centre Rest Chuck is mounted in the tail stock of the lathe, permitting the turning of round work without the use of a centre. The stationary bronze jaws provide a bearing for the work which being turned. **These jaws are adjusted by means of a sleeve,** to the diameter of the work to be supported, and locked in place. This chuck in place of the lathe bed steady rest, is easier and more convenient to use, and has equal accuracy. It is conveniently mounted on the tail stock of the lathe by means of a taper arbor, which replaces the tailstock centre.

No. 100. Capacity $\frac{1}{4}$–$\frac{3}{4}$ in. Plain Taper Hole No. 3. **Price each £2 1 8**
Extra Jaws and Nuts, **13/7 per Set.** Sleeves, **5/3 each.**



Hollow Spindle Chuck

A Plain Bearing Improved Chuck, having a full capacity hole through the body, and a large taper hole for fitting it to the lathe by means of hollow taper arbors. **Designed for application to lathes having thread dimensions other than those for which the Headstock Chuck** is provided. This chuck accomplishes substantially the same results as the Headstock model, and may be used for holding long rods, valves, etc.

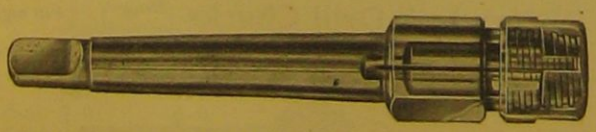
No.	Capacity ins.	Price each
32VR	$\frac{1}{16}$–$\frac{7}{16}$	£1 9 2
34VR	$\frac{3}{16}$–$\frac{9}{16}$	2 1 8
3AVR	$\frac{1}{8}$–$\frac{5}{8}$	2 1 8
58VR	$\frac{1}{8}$–$\frac{5}{8}$	2 1 8
4VR	$\frac{1}{16}$–$\frac{3}{4}$	3 2 6
5VR	$\frac{3}{8}$–1	4 3 4

Jacobs Single Purpose Chucks (Made In U.S.A.)

For drilling, reaming, milling and tapping operations on single or multiple spindle machines these Chucks fit directly into the machine spindle and have positive drive. Small in diameter they are rigid and accurate and easily tightened or released by a wrench on the taper threaded nut. Their simplified two-piece construction gives long life.

Morse Taper Models have positive drive, except on tools under $\frac{1}{8}$ inch diameter, where a friction drive is sufficient. Two flats are ground on end of drill or reamer shanks to provide positive drive.

Brown and Sharpe Models for driving Woodruff Key Cutters are made in $\frac{1}{2}$ inch capacity only. They can be had for either friction or positive drive.



*Each Chuck can hold only one size tool shank, but each model can be furnished for any size shank up to the maximum size listed.

MORSE TAPER MODELS

No.	Price Each	*Capacity up to, Ins.	Morse Taper	Max. Diam.	Total Length Ins.	Length Taper Ins.
FA1	14/7	·250	1	$\frac{29}{32}$	$3\frac{15}{32}$	$2\frac{7}{16}$
FB1	14/7	·375	1	$\frac{7}{8}$	$3\frac{7}{8}$	$2\frac{7}{16}$
FB2	16/8	·375	2	$\frac{7}{8}$	$4\frac{3}{16}$	$2\frac{15}{16}$
FC2	16/8	·562	2	$1\frac{1}{8}$	$4\frac{7}{8}$	$2\frac{15}{16}$
FC3	20/10	·562	3	$1\frac{1}{8}$	$5\frac{1}{8}$	$3\frac{11}{16}$

BROWN AND SHARPE TAPER MODELS

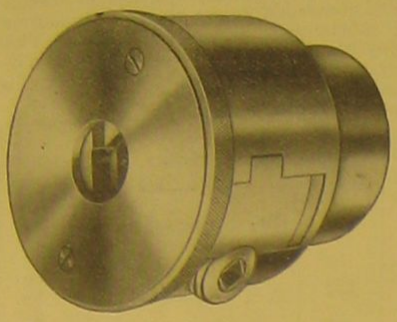
C7	20/10	·500 only	7	$1\frac{1}{32}$	$5\frac{15}{32}$	$3\frac{17}{32}$
C9	22/11	·500 only	9	$1\frac{1}{4}$	$6\frac{1}{16}$	$4\frac{9}{32}$
C10	25/0	·500 only	10	$1\frac{1}{8}$	$7\frac{27}{32}$	$6\frac{13}{32}$

When ordering specify Chuck No. and size of Drill, Reamer or Tap to be held.

DRILL CHUCKS

Pratt "Eagle" Drill Chucks (British Made)

These Chucks are of all-steel construction. Strength, fine limits of accuracy, interchangeability, and the floating, positive driving plate are features which make these tools high-class, reliable products.

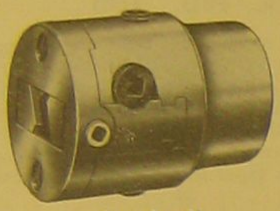


Sizes and Prices

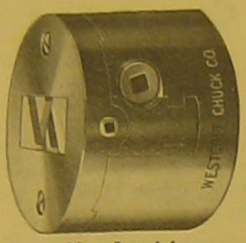
Size Capacity Ins.	Diam. Ins.	Length Ins.	Weight Lbs.	Price Each	Extra Parts Each			
					Jaws	Spiral Screw	Wrench	Driving Plate
0–$\frac{3}{8}$	$1\frac{7}{8}$	$2\frac{1}{2}$	$1\frac{1}{4}$	31/6	14/11	8/2	4/2	2/6
0–$\frac{1}{2}$	2	3	$2\frac{1}{4}$	44/3	17/-	8/2	4/2	2/6
0–$\frac{3}{4}$	3	$3\frac{1}{2}$	$4\frac{3}{4}$	48/9	21/2	9/11	5/-	3/6
0–1	$3\frac{1}{2}$	4	$9\frac{1}{4}$	58/6	28/3	11/6	6/-	4/2

Arbors. Price Each

For Chuck Size	Morse Taper					Parallel Shank		
	No. 1	No. 2	No. 3	No. 4	No. 5	$\frac{1}{2}$ In.	$\frac{3}{4}$ In.	1 In.
$\frac{1}{2}$ In.	3/8	4/-	6/-	9/-	12/5	4/3	4/9	5/5
$\frac{5}{8}$,,	3/8	4/-	6/-	9/-	12/5	4/3	4/9	5/5
$\frac{3}{4}$,,	6/11	6/11	6/11	9/-	12/5	6/11	6/11	6/11
1 ,,	9/-	9/-	9/-	11/9	12/5	9/-	9/-	9/-



Nos. 0 to $2\frac{1}{2}$



Nos. 3 and 4

"Little Giant" Double Grip Drill Chucks (Made in U.S.A.)

These Chucks are of exceptional driving power, and are fitted with a forged steel cap which prevents spread of the forward part of the body.

This cap is furnished with two screws which, when tightened, set up against the jaws and keep the drill centred.

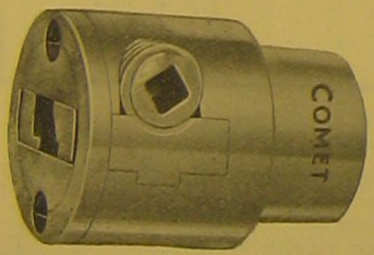
In addition there are two side screws, which can be brought to bear on the drill shank, for heavy work, and so produce a positive drive.

Nos. 3 and 4 Face-plate style chucks are for use on hollow spindle lathes, screw machines and turret-head lathes.

Bodies are of semi-steel, cap plates of malleable iron or steel and jaws of high carbon heat treated steel.

No.	Diameter Ins.	Holding Drills Ins.	Price Complete	Screws Each	Jaws per Set	Keys Each	Side Screws Each	Caps Each	Cap Screws Each	Cap Set Screws Each	Rings Each	Ring Screws Each
	REGULAR STYLE											
*00	$1\frac{7}{16}$	0 to $\frac{1}{4}$	44/5	8/4	18/4	2/9	—	—	—	—	1/3	-/3
0	$2\frac{1}{2}$	0 ,, $\frac{1}{2}$	50/-	9/2	20/-	4/2	-/10	8/4	-/3	-/8	1/6	-/3
1	3	0 ,, $\frac{3}{4}$	56/3	9/7	22/6	4/2	-/10	11/8	-/3	-/8	1/8	-/3
2	$3\frac{1}{2}$	0 ,, 1	72/11	10/-	23/9	5/5	1/3	14/2	-/3	-/10	2/1	-/3
$2\frac{1}{2}$	4	0 ,, 1 (Extra Strong)	83/4	10/-	25/10	5/5	1/3	15/-	-/3	-/10	3/4	-/3
	FACE-PLATE STYLE											
3	6	0 to $1\frac{1}{2}$	125/-	21/8	43/4	8/4	1/8	30/-	-/5	1/6	6/3	-/3
4	$6\frac{1}{2}$	0 ,, 2	156/3	25/-	53/4	8/4	1/8	37/6	-/5	1/6	8/4	-/3

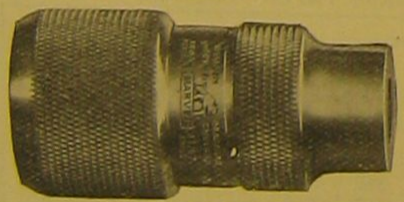
*Only made in the old style, single-grip form.



COMET Two-Jaw Drill Chucks (Foreign)

Combining great power and durability. Jaws are machined and tempered tool steel and are accurately fitted.

Chuck No.	1	2	3	4	5	6
Capacity, Ins.	0–$\frac{1}{4}$	0 to $\frac{3}{8}$	0 to $\frac{1}{2}$	0 to $\frac{5}{8}$	0 to $\frac{3}{4}$	0 to 1
Diameter ,,	—	$1\frac{3}{32}$	$1\frac{13}{32}$	$1\frac{3}{4}$	2	$2\frac{7}{16}$
Price Each	12/6	16/-	19/6	22/6	26/6	36/-



"Marvel" Drill Chucks (British Made)

This Chuck is strongly made for heavy duty. It is automatic in operation, the drills tighten as feed increases, and are released by hand pressure on the chuck body, no keys are required.

Nos.	101	102	103	105	106
Capacity	0–$\frac{1}{4}$	0–$\frac{3}{8}$	0–$\frac{17}{32}$	$\frac{1}{8}$–$\frac{5}{8}$	$\frac{3}{16}$–$\frac{3}{4}$ inch
Price	20/-	24/-	31/6	44/-	52/- each

Also made in Electric Drill, Combined or Turret Lathe Styles. On application.

"Wonder" Drill Chucks (British Made) Foreign.

Designed for the finer sorts of drilling, and high speeds and is automatic in operation.

Nos.	99	100	104
Capacity	0–$\frac{1}{8}$	0–$\frac{1}{4}$	0–$\frac{3}{8}$ inch
Price	24/-	25/-	29/- each

Hardened and Ground. **Arbors for "Marvel" and "Wonder" Chucks. Morse Taper, No. 1, 2/3; No. 2, 2/9; No. 3, 3/6; No. 4, 5/-; Parallel up to 1 in. diam., 2/-; 1 to $1\frac{1}{4}$ in., 2/9 each.**

DRILL CHUCKS

Millers Falls Drill Chucks (Made in U.S.A.)

This Chuck has three steel jaws, carefully adjusted in a socket to keep them in place, and so arranged as to open and close with the loosening and tightening of the Chuck on the spindle.

Highly polished and nickel-plated.

Nos.	4	5	6	7
Capacity	0 to $\frac{3}{16}$	0 to $\frac{1}{4}$	0 to $\frac{3}{8}$	0 to $\frac{1}{2}$ inch
Shanks	$2\frac{1}{2}\times\frac{1}{2}$	$2\frac{1}{2}\times\frac{1}{2}$	$2\frac{1}{2}\times\frac{1}{2}$	$2\frac{1}{2}\times\frac{1}{2}$,,
Prices	**5/8**	**4/-**	**5/6**	**7/- each**

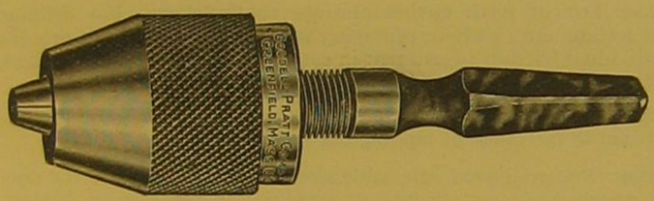
Genuine Goodell Pratt Drill Chucks (Made in U.S.A.)

Nos. 14 to 16, with Straight or Taper Shank

No wrench is required with these Chucks as they can be easily tightened or loosened without.

The three hardened steel jaws are held apart by separating springs which draw the jaws back as the Chuck is loosened. Fitted with $\frac{1}{2}$-inch parallel or taper shanks.

		With Straight Shank.	With Taper Shank.
No. 14.	Holds from 0 to $\frac{5}{32}$ inch	4/-	7/6
,, 15	,, 0 ,, $\frac{1}{4}$,,	5/10	8/9
,, $15\frac{1}{2}$	,, 0 ,, $\frac{3}{8}$,,	7/-	10/6
,, 16	,, 0 ,, $\frac{1}{2}$,,	8/9	13/6



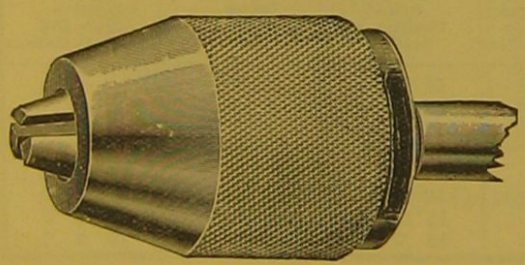
Nos. 14B to 16B, with Bit Brace Shank

These Drill Chucks have taper square shanks that can be held in an ordinary bit brace chuck.

The shanks are milled on centres to keep them in perfect alignment, and are hardened so that they will not be damaged by the jaws in the brace.

No. 14B.	Holds from 0 to $\frac{5}{32}$ inch	6/8
,, 15B.	,, 0 ,, $\frac{1}{4}$,, ...	8/-
,, $15\frac{1}{2}$B.	,, 0 ,, $\frac{3}{8}$,, ...	9/2
,, 16B.	,, 0 ,, $\frac{1}{2}$,, ...	12/-

COMET Drill Chucks (Foreign)



This Chuck is similar in construction to the Goodell Pratt Drill Chucks, shown above.

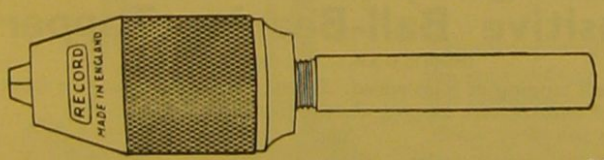
It is hand operated and can be tightened or loosened without using a wrench.

Fitted with $\frac{1}{2}$-inch parallel or with taper shanks.

	With Straight Shank.	With No. 1 Morse Taper Shank.	Jaws, per Set.
Capacity, 0 to $\frac{1}{4}$ inch	1/10	1/10	1/-
,, 0 ,, $\frac{3}{8}$,,	2/6	2/6	1/-
,, 0 ,, $\frac{1}{2}$,,	3/3	3/3	1/-

Extra Springs per Set of 3 ... 6d. for all sizes.

"Record" Drill Chucks (British Made)



"Record" Drill Chucks are supplied with either straight taper or bit brace, shanks.

They are made entirely of steel, have three hardened and ground steel jaws controlled by concealed and protected springs. Nickel-plated finish.

Straight Shanks are $2\frac{1}{2}\times\frac{1}{2}$ ins. Taper Shanks are No. 1 Morse.

PRICES

Capacity Ins.	With Straight Shank No.	With Straight Shank Price Each	With Taper Shank No.	With Taper Shank Price Each	With Bit Brace Shank No.	With Bit Brace Shank Price Each
		s. d.		s. d.		s. d.
0–$\frac{1}{4}$	322S	3 6	322T	4 0	322B	5 0
0–$\frac{3}{8}$	326S	4 9	326T	5 3	326B	6 3
0–$\frac{1}{2}$	345S	6 0	345T	6 6	345B	7 6

"Trump" Drill Chuck (Made in U.S.A.)

This Chuck is made entirely of steel. The jaws are hardened and have a good bearing on the drill. It is fitted with a straight parallel shank, which can be held in a larger chuck, or can be turned to fit a lathe or drilling machine.

PRICES

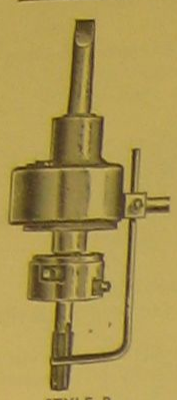
Nos.	1	2	3
Capacity	...0 to $\frac{1}{8}$	0 to $\frac{1}{4}$	0 to $\frac{3}{8}$ inch
Prices	... 8/4	14/7	25/- each

Spare Spring Collets

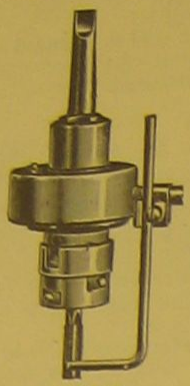
	Price each	Price per set
No. 1 has one Spring Collet	2/11	—
,, 2 ,, two ,, ,,	2/11	5/10
,, 3 ,, three ,, ,,	4/2	12/6

Errington Auto-Reverse Tappers (Made in U.S.A.)

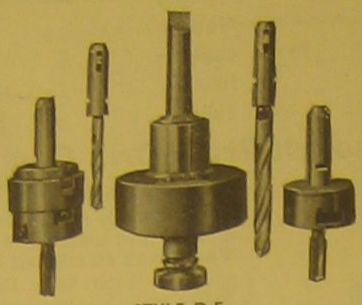
For Drilling Machines not provided with Reverse Motion



STYLE B (Positive)



STYLE C (Friction)



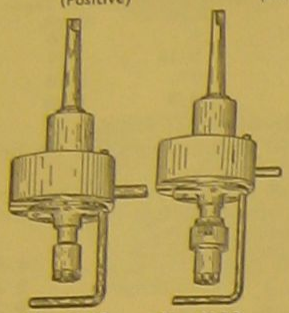
STYLE D-E

These Tapping Chucks are arranged so that a tap can be driven in either direction. If the movement of the spindle be arrested, the tap continues to wind itself into the work, and by so doing disengages the driving clutch and ceases to turn.

As soon as the spindle is raised the reverse clutch becomes engaged and the tap is backed out of the work at an increased speed.

Each tapper is fitted with an adjustable stop.

Whenever possible, the pieces to be tapped should be passed between two overlapping parallel strips attached to the drill table. If slide be long enough, a succession of pieces can be operated on and tapped.



No. 00HS — No. 00CS
SUPER-SENSITIVE HIGH SPEED TAPPERS

Style B **Positive drive** type for through holes in work already drilled and rehandled for tapping.

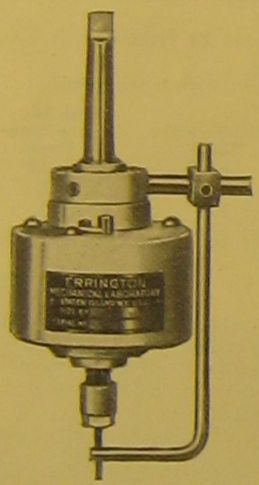
Style C **Friction drive** type recommended for tapping steel, copper, etc. Fitted with adjustable friction box which allows of blank holes being tapped to the bottom.

Style D-E **Auto-Reverse Turret with Quick-change toolholders.** For drilling, tapping, stud setting, etc., without removing work, stopping or reversing the machine. Individual friction adjustment in each tap holder can be furnished, when desired, at extra cost.

Style 00HS **Positive drive** High Speed Type. Can be fitted with a variety of tap-holders according to the range of tapping desired.

Style 00CS **Friction drive.** The graduated adjustable safety friction is fitted in the tap-holder itself, where it is most effective in avoiding tap breakage on bottom holes, steel, copper, etc.

No.	Capacity Inches	Morse Shank Taper No.	Price Positive—Style B	Price Friction—Style C	Price Positive—Style D-E with Two Collets
00HS & CS	Up to $\frac{3}{16}$	1	£5 12 6	£6 15 0	—
00	$\frac{1}{16}$ „ $\frac{5}{16}$	1	5 12 6	6 15 0	—
0	$\frac{3}{16}$ „ $\frac{1}{2}$	3	6 15 0	7 17 6	£7 17 6
1	$\frac{1}{4}$ „ $\frac{3}{4}$	3	7 17 6	9 0 0	9 0 0
2	$\frac{5}{16}$ „ 1	4	9 0 0	11 5 0	11 5 0
3	$\frac{3}{8}$ „ $1\frac{1}{4}$	4	11 5 0	13 10 0	13 10 0
4	$\frac{1}{2}$ „ $1\frac{3}{4}$	5	15 15 0	18 0 0	18 0 0
5	$\frac{3}{4}$ „ 2	5	18 0 0	20 5 0	20 5 0



STYLES **Nos. 0 and 00** CONE DRIVE SUPER SENSITIVE BALL-BEARING TAPPER

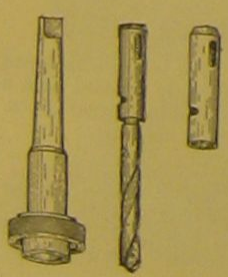
Errington High-Speed Cone Drive Super-Sensitive Ball-Bearing Tapper

(Made in U.S.A.)

Designed for very small tapping at high speed. Fitted with super-sensitive feed, ball bearings and 2 to 1 auto-reverse tapping chuck. Cone drive.

Size No.	**00**	**0**
Capacity in Steel ... ... Ins.	0 to $\frac{3}{16}$	0 to $\frac{3}{8}$
„ in Cast Iron ... ... „	0 to $\frac{1}{4}$	0 to $\frac{1}{2}$
Price Each	**£7 17 6**	**£11 5 0**

Errington Quick-Change Ball Drive Tool Holders—Style "E Positive" (Made in U.S.A.)

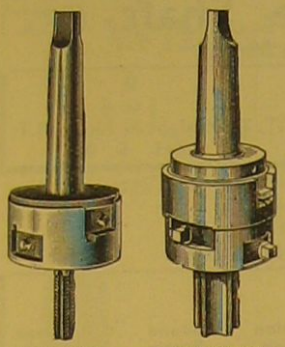


Size No.	Drills up to Ins.	Collets Supplied	M.T. Shank to fit Machine Spindle	Price including 2 Collets	Extra M.T. Collets	Extra Plain Soft Blank Collets
0	$\frac{3}{8}$	Two—Soft solid blanks	No. 1	£2 5 0	—	£0 5 9
1	$\frac{1}{2}$	Two—No. 1M.T.	„ 2	4 10 0	0 15 6	0 11 9
2	$\frac{3}{4}$	One Each—No. 1 & 2M.T.	„ 3	5 12 6	0 19 6	0 15 6
3	$1\frac{1}{4}$	„ „ 2 & 3M.T.	„ 3 & 4	6 15 0	1 3 3	0 17 3
4	2	„ „ 3 & 4M.T.	„ 4 & 5	9 0 0	1 11 0	1 3 3
5	3	„ „ 4 & 5M.T.	„ 5 & 6	13 10 0	2 14 3	1 18 6

These Tool Holders can be used with Styles F & C Self Centring Tap Holders, or Special Tap Holding Collets.

Errington Plain Tapping Devices (Made in U.S.A.)

For Drilling Machines fitted with Reverse Motion—Styles F and G.

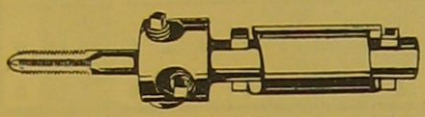


POSITIVE STYLE F — FRICTION STYLE G

Style F is the positive holder, it consists essentially of a shank adapted to fit the Morse taper socket of the drilling machine, and carrying at its lower end Errington's Duplex Chuck, **Style G is as the above, with the addition of a friction box** above the chuck, which allows it to slip if the twisting strain becomes excessive, and thus prevents the danger of the taps being broken. A flange on the shank is tightened between fibre washers in the friction box, and so allows adjustment for any desired maximum strain.

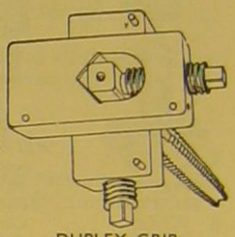
When this has been set to suit the work to be done, taps can be run clear down to the bottom of the holes without risk, and uniformity of depth is rendered unnecessary—a great advantage on jobbing work.

A wrench is provided for adjusting the tension; and a positive drive can be obtained, if desired, by inserting a key under the fibre washer.



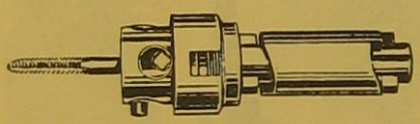
STYLE F-H

The "Duplex" Chuck gives a powerful grip and centres the tap by means of two independent dogs, one above the other in the chuck body and mounted at right angles (as illustrated). The upper one grips the square of the tap, and the lower one the round shank, and being free to move lengthwise, they automatically adjust themselves to different sizes. If the tap is desired to "float," all that is necessary is to widen slightly the grooves in which the dogs slide.



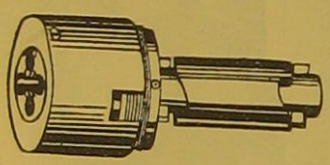
DUPLEX GRIP

For Turret Lathes



STYLE G-H

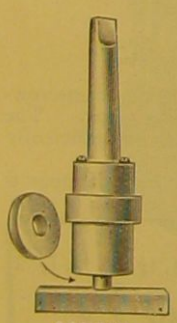
Style F-H is a Positive drive Tap Holder with double clutch sleeve.
Style G-H—Friction type Tap Holder with self-centring Duplex Chuck and double clutch sleeve.
Style G-L—Friction Die Holder with double clutch sleeve.



STYLE G-L

No.	Capacity up to Inches	Morse Shank No.	For Drilling Machines		For Turret Lathes		
			Price Style F Positive	Price Style G Friction	Price Style F-H Positive	Price Style G-H Friction	Price Style G-L Friction Die Holder
00	$\frac{3}{8}$	1	£1 7 0	£2 5 0	£2 9 6	£3 7 6	£3 7 6
0	$\frac{5}{8}$	3	2 0 6	3 7 6	3 3 0	4 10 0	4 10 0
1	$\frac{3}{4}$	3	2 16 6	4 10 0	3 19 0	5 12 6	5 12 6
2	1	4	3 7 6	5 1 6	4 10 0	6 4 0	6 4 0
3	$1\frac{1}{4}$	4	3 19 0	5 12 6	5 1 6	6 15 0	6 15 0
4	$1\frac{1}{2}$	5	4 10 0	6 4 0	5 12 6	7 6 6	7 6 6
5	2	5	5 12 6	6 15 0	6 15 0	7 17 6	7 17 6

Errington Auto-opening Stud or Nut Setters (Made in U.S.A.)

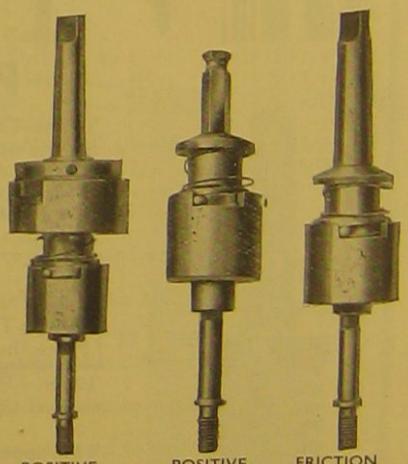


POSITIVE

FRICTION

The jaws open automatically and release the stud without stopping or reversing the machine.

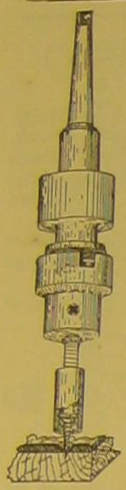
These tools are accurate in alignment and the ability automatically to open the jaws by slipping of the friction offers a new field for setting all varieties of screw studs, etc.



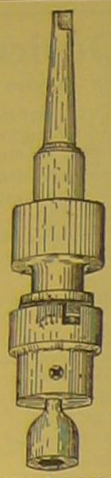
POSITIVE — POSITIVE — FRICTION

Quick-Release Reversible Stud or Nut Setters for Reversible Drills

Size No.	Range Ins.	M.T. Shank No.	Price Including 1 Pair Standard Stud Nuts		Extra Split Nuts		Quick Release Reversible Stud or Nut Drive	
			Positive	Friction	Positive per Pair	Friction per Pair	Positive	Friction
00	$\frac{3}{16}$ to $\frac{3}{8}$	2	£5 12 6	£6 15 0	£0 15 6	£1 3 6	£5 12 6	£6 15 0
0	$\frac{1}{4}$,, $\frac{1}{2}$	3	6 4 0	7 6 6	0 19 6	1 7 0	6 4 0	7 6 6
1	$\frac{5}{16}$,, $\frac{3}{4}$	3, 4	6 15 0	7 17 6	1 5 0	1 14 6	6 15 0	7 17 6
2	$\frac{3}{4}$,, $1\frac{1}{4}$	4, 5	9 0 0	11 5 0	1 18 6	2 10 0	9 0 0	11 5 0



STYLE G-J FRICTION SCREW DRIVER



STYLE G-J-K FRICTION NUT-SETTER Completely Assembled

FLEXIBLE SHAFT OUTFIT

Errington Flexible Shaft (Made in U.S.A.)

Prices of Flexible Shafts

Size No.	**00**	**0**
Capacity ... ins.	$\frac{1}{16}$ to $\frac{3}{8}$	$\frac{1}{4}$ to $\frac{5}{8}$
Connecting End ...	$\frac{31}{32}$ Straight or No. 2M.T.	$\frac{31}{32}$ Straight or No. 2 M.T.
Price per Six Feet	**£7 17 6**	**£11 5 0**

Coupling Sleeve furnished for irregular connection, Extra:—
No. 1 M.T. Socket (O.D. $\frac{15}{16}$ in.)
No. 2 M.T. Socket (O.D. $1\frac{1}{8}$ ins.)

Attachments for Flexible Shaft

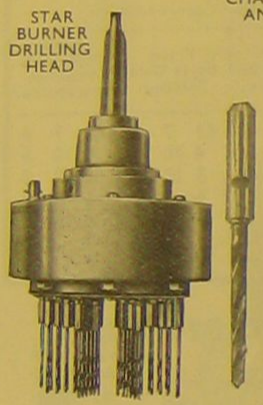
Screw Driver Style G-J without Bit	Nut-Setter Style G-J-K without Socket	Quick Change System Style E Positive (without Chuck)	Friction Chuck Style G	Round Screw Driver Sockets	Sq. or Hex. Nut-Setter Sockets
£4 10 0	£4 10 0	£2 5 0	£2 5 0	£1 2 6	£1 14 0
5 12 6	5 12 6	2 5 0	3 7 6	1 2 6	1 14 0

Add to the price of the Flexible Shaft the price of the Attachment required.

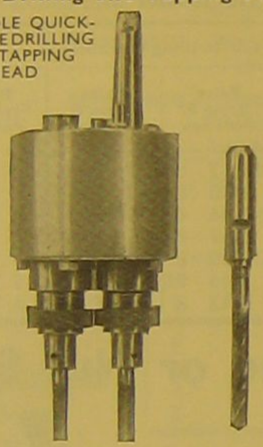
Errington Multiple Spindle Heads (Made in U.S.A.)

For Drilling and Tapping Machines

STAR BURNER DRILLING HEAD



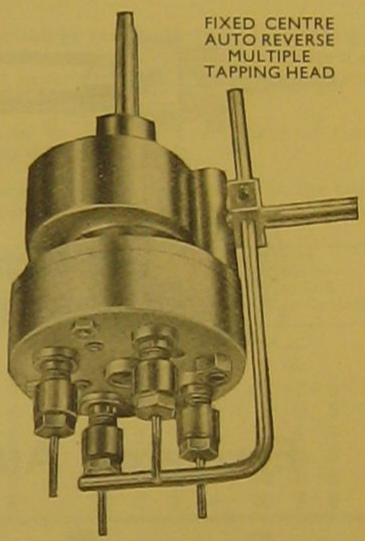
2 SPINDLE QUICK-CHANGE DRILLING AND TAPPING HEAD



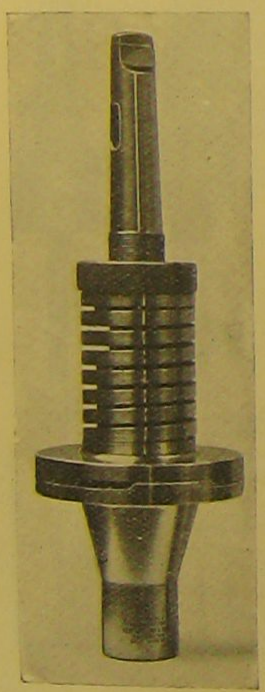
Errington Multiple Heads can be supplied to meet all drilling and tapping requirements and arranged with any combination or number of spindles.

We invite customers to send details of production requirements, or blueprints to enable us to quote.

FIXED CENTRE AUTO REVERSE MULTIPLE TAPPING HEAD



Pearn's "Lightning" Tappers (British Made)



These Tappers are readily adjusted to the various sizes of taps by screwing or unscrewing the nut at the top of the spring, the inner spindle being indexed for each size of tap. The effect of the compression of the spring is to hold the faces of the clutches together sufficiently tight to drive the tap and yet to allow them to slip before breaking the tap.
They can be used in any Drilling Machine having a reversing motion. Each Tapper is fitted in a polished pine box prepared to receive both Tapper and taps.

Size	**O**	**A**	**B**	**C**
With Tap ... ... ins.	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$	$\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{3}{4}$	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$	1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2
Morse Taper Shank No. ...	**2**	**3**	**4**	**5**
Price, in Case, but no Taps	**£5 12 0**	**£8 0 0**	**£11 5 0**	**£19 5 0**

Taps.—Whitworth and Gas Threads can be supplied in the range of sizes covered by the four sizes of tapper. **Prices on application.**

Studding

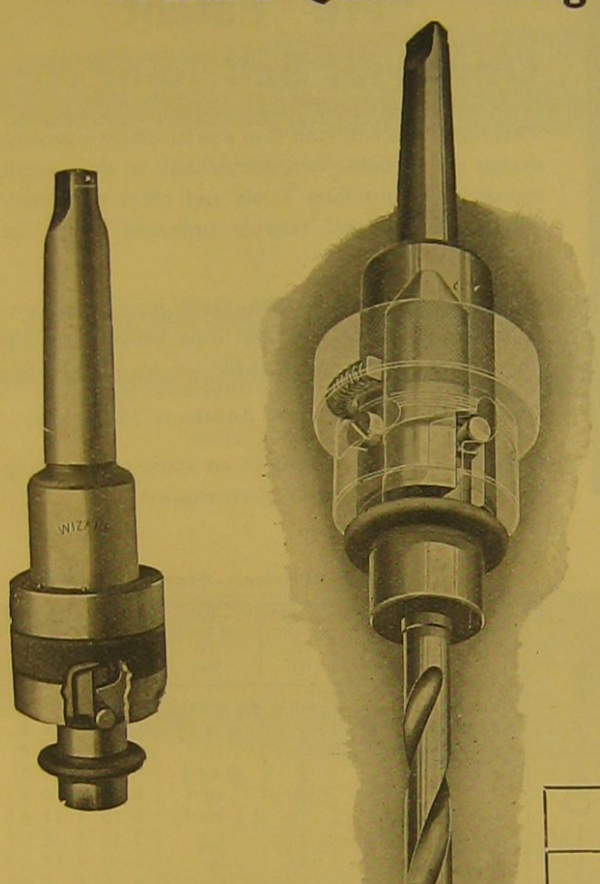
This apparatus is equally well adapted for putting in studs after the holes are tapped, a studding socket for each different size being all that is required to enable the operation to be performed with rapidity.

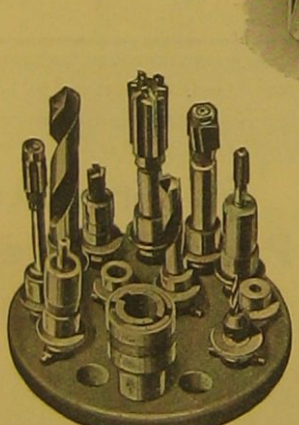
Prices of Studding Sockets

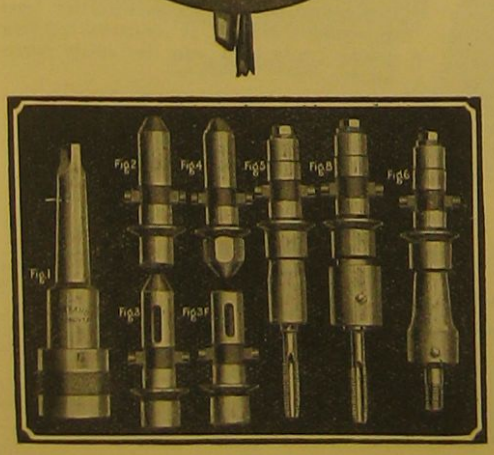
For Style O, size ins. ...	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$						
Price Each	**5/9**			**6/6**							
For Style A, size ins.	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$		$\frac{5}{8}$	$\frac{3}{4}$		
Price Each	**7/-**			**8/-**				**9/-**			
For Style B, size ins. ...	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Price Each	**11/-**				**12/-**				**13/-**		**14/-**	
For Style C, size ins. ...	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2		
Price Each	**13/-**	**14/-**	**15/-**	**16/-**	**17/-**	**18/-**	**19/-**	**20/-**	**22/-**	**24/-**		

For Jacobs Tap Chucks—See page 21.

Wizard Quick Change Chucks and Collets (Made in U.S.A.)







This device enables all sizes and kinds of tools, such as drills, taps, reamers, etc., to be used in rapid succession without stopping the machine, regardless of the rate of speed. A touch to the collar releases one tool and another tool is inserted with another touch. The motion of the spindle itself does the work.

Fig. 1 represents Wizard Chuck, while Figs. 2, 3, and 4 show various collets used in connection with it.

Fig. 2 shows a blank collet which is sent soft.

Fig. 3 shows the regular Morse Taper Collet, which is furnished with various sizes of Morse Taper holes.

Fig. 4 shows an Adjustable Collet for small straight shank drills.

The Chucks are hardened and ground all over, and the Collets are one solid steel drop-forging, machined, hardened, and ground.

Wizard Stands

The Wizard Stand has a swivelling cast-iron top with reamed holes, heavy cast-iron base, solid steel upright.

Price, to take any size Chuck **£1 17 6**

Wizard Chucks

Size.	Size of Chuck Shank	Range of Fig. 3 Collet	Price
A	Morse 2 or 3	Morse Taper 1 and 2	37/6
B	,, 3 ,, 4	,, 1, 2, and 3	50/-
C	,, 4 ,, 5	,, 1, 2, 3, and 4	75/-

Wizard Collets

		Price each for Chuck Size		
		A	B	C
	Figure 2 Collets			
20	Blank, to be fitted up for tool by purchaser ...	6/3	8/9	12/6
	Figure 3 Collets			
31	With No. 1 Morse Taper Hole	10/6	14/6	20/6
32	,, ,, 2 ,, ,, ,, ...	10/6	14/6	20/6
33	,, ,, 3 ,, ,, ,, ...	—	14/6	20/6
34	,, ,, 4 ,, ,, ,, ...	—	—	20/6
	Figure 4 Collets			
41	Capacity, Straight Shank Drills 0 to $\frac{1}{8}$ in. ...	15/9	17/9	19/3
42	,, ,, ,, ,, No. 29 ,, $\frac{17}{64}$,, ...	15/9	17/9	19/3
43	,, ,, ,, ,, $\frac{17}{64}$,, $\frac{13}{32}$,, ...	17/9	19/9	21/3
	Figure 8 Collets			
55	Without Bushing. Takes No. 55 T Bushing ...	35/9	43/9	54/3
56	,, ,, ,, ,, 56 T ,, ...	38/-	45/9	56/3
57	,, ,, ,, ,, 57 T ,, ...	—	48/-	58/3
55	With Bushing No. 55 T to fit any one size tap in range, $\frac{3}{16}$ to $\frac{7}{16}$ in.	50/-	58/-	68/6
56	With Bushing No. 56 T to fit any one size tap in range, $\frac{1}{2}$ to $\frac{3}{4}$ in.	54/3	62/-	72/6
57	With Bushing No. 57 T to fit any one size tap in range, $\frac{13}{16}$ to $1\frac{1}{8}$ ins.	—	66/9	77/-
	Extra Bushings only Nos. 55 T, 56 T, 57 T fitted for any one size can be supplied at difference between prices above.			
550T	Blank Bushing No. 55 T to be fitted to tap by purchaser	5/9	5/9	5/9
560T	Blank Bushing No. 56 T to be fitted to tap by purchaser	8/-	8/-	8/-
570T	Blank Bushing No. 57 T to be fitted to tap by purchaser	—	10/6	10/6

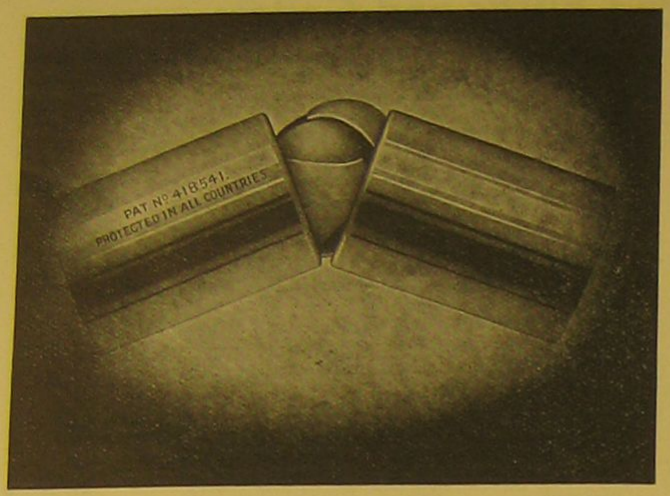
Wizard Tap-Holder, Fig. 8

With Fiction Drive

Takes Ordinary Hand Taps

No. 55 ... ... For Size A Collet
,, 56 ... ... ,, ,, B ,,
,, 57 ... ... ,, ,, C ,,

For Prices see Figure 8 Collets above



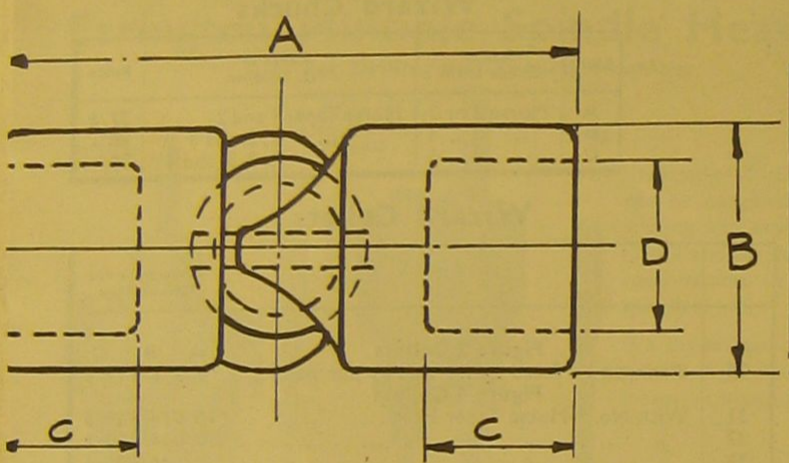
"ME" Patent Universal Ball Joint (British Made)

This high-class ball joint is of a particularly ingenious design and is being extensively used in the aircraft industry for machine Tools and other machinery where efficient and reliable universal joints are required.

Only the highest quality steel is used in construction and the joint is interchangeable with American and German models.

Angularity of Standard Joints is 38 degrees.

Copies of N.P.L. Reports on static and running torque tests, may be had when required.



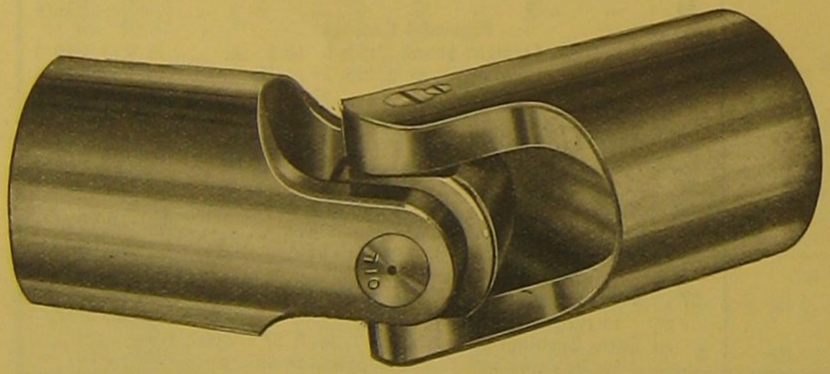
Sizes and Prices—Standard Joints

Size No.	Length Overall "A" Ins.	Outside Diam. B Ins.	Depth of Bore C Ins.	Diam. of Bore "D" Ins.	Weight Lbs. Ozs.	Price Each Grade A	Price Each Grade B
01	$1\frac{3}{4}$	$\frac{21}{32}$	$\frac{3}{8}$ or $\frac{7}{16}$	$\frac{1}{4}$, $\frac{5}{16}$ or $\frac{3}{8}$	— 2	14 9	10 6
1	2	$\frac{27}{32}$	$\frac{1}{2}$	$\frac{7}{16}$ or $\frac{1}{2}$	— $3\frac{1}{2}$	16 6	12 0
2	$2\frac{1}{2}$	$1\frac{3}{32}$	$\frac{5}{8}$	$\frac{5}{8}$	— 7	18 3	13 9
3	3	$1\frac{5}{16}$	$\frac{3}{4}$	$\frac{11}{16}$ or $\frac{3}{4}$	— $12\frac{1}{2}$	1 1 3	17 0
4	$3\frac{1}{2}$	$1\frac{19}{32}$	$\frac{13}{16}$	$\frac{7}{8}$ or 1	1 4	1 4 6	19 0
5	$4\frac{13}{16}$	$1\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{16}$ or $1\frac{1}{8}$	1 15	1 11 6	1 5 0
6	$5\frac{5}{8}$	$2\frac{3}{32}$	$1\frac{7}{16}$	$1\frac{7}{16}$	3 12	2 0 0	1 15 0
7	$5\frac{7}{8}$	$2\frac{9}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	4 8	4 17 0	4 5 0
8	$6\frac{3}{8}$	$2\frac{13}{16}$	$1\frac{5}{8}$	$1\frac{5}{8}$	5 8	6 7 0	5 0 0

Grade B Joints are recommended for speeds up to 250 r.p.m.

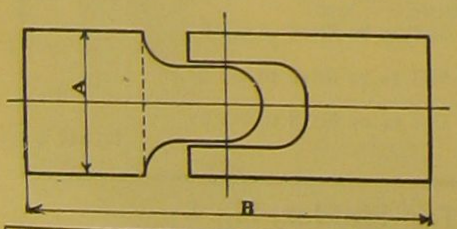
Non-Standard Joints can be supplied.

Prices will be submitted on request.



Bocorselski's Patent Universal Joint (Made in U.S.A.)

This Universal Joint has the advantage of being strong, durable, and simple in construction. It is especially adapted for a flexible connection with the least possible friction. It consists of five pieces only, and can be easily taken apart.



The centre block is made from a fine grade of steel, case-hardened, with provision made for oiling, and has bearings on both sides.

These Universal Joints are made from $\frac{3}{8}$ inch to 4 inches diameter inclusive, in steel, and are fully guaranteed.

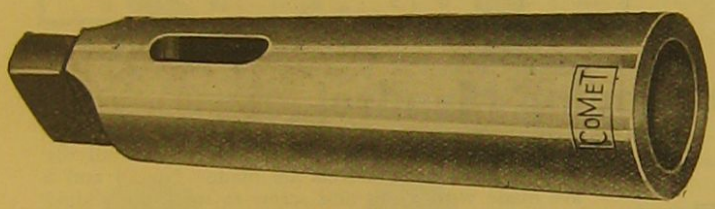
Sizes and Prices

"A" ... ins.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	3	4
"B" ... "	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{11}{16}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{3}{4}$	$4\frac{1}{8}$	$4\frac{1}{2}$	$5\frac{7}{16}$	7	9	$10\frac{5}{8}$
Revolutions ...	500	500	500	500	500	200	200	200	200	200	200	200	200
Horse-power ...	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	5	6	7	12	15	18	26
Prices (Steel) each	12/-	12/-	13/6	14/9	18/9	21/3	26/9	32/-	37/3	45/3	74/6	156/6	437/6

COMET Sockets and Sleeves for Taper Shank Drills (British Made)

REGULAR FINISHED SOCKET

BLANK END SOCKET



SLEEVE

SOCKETS

Taper In- side	Out- side			Taper In- side	Out- side		
No. 1 to 2		Price	4/– each	No. 3 to 3		Price	7/– each
,, 1 ,, 3		,,	5/6 ,,	,, 3 ,, 4		,,	7/– ,,
,, 1 ,, 4		,,	7/- ,,	,, 3 ,, 5		,,	13/3 ,,
,, 2 ,, 3		,,	5/6 ,,	,, 4 ,, 4		,,	12/- ,,
,, 2 ,, 4		,,	7/- ,,	,, 4 ,, 5		,,	13/3 ,,
,, 2 ,, 5		,,	13/3 ,,	,, 5 ,, 4		,,	18/- ,,
,, 3 ,, 2		,,	7/9 ,,				

SOCKETS WITH BLANK END

Price includes plug for use in turning Shank

No.		**1**	**2**	**3**	**4**	**5**
M.T. Inside No. ...		1	2	3	4	5
Whole Length	ins.	7	8	10	13	15
Diam., Blank End	,,	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$
Length ,, ,,	,,	$3\frac{7}{8}$	$4\frac{1}{4}$	$5\frac{3}{8}$	$7\frac{3}{8}$	8
Price Each		**3/6**	**4/6**	**6/9**	**11/-**	**23/6**

SLEEVES

Taper In- side	Out- side			Taper In- side	Out- side		
No. 1 to 2		Price	1/6 each	No. 2 to 4		Price	3/6 each
,, 1 ,, 3		,,	2/- ,,	,, 2 ,, 5		,,	7/6 ,,
,, 1 ,, 4		,,	3/6 ,,	,, 3 ,, 4		,,	3/6 ,,
,, 1 ,, 5		,,	7/6 ,,	,, 3 ,, 5		,,	7/6 ,,
,, 2 ,, 3		,,	2/- ,,	,, 4 ,, 5		,,	7/6 ,,

STEEL DRIFTS FOR "COMET" SOCKETS AND SLEEVES

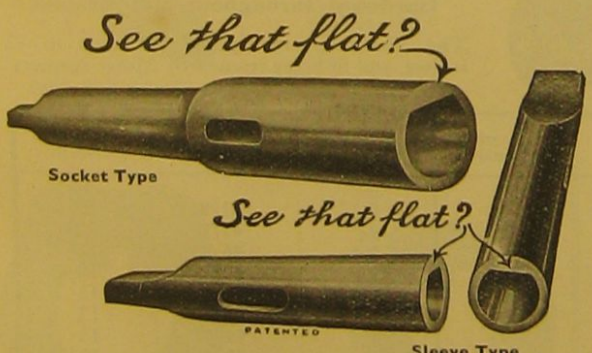
Size No. ...	**1**	**2**	**3**	
For M.T. Nos.	**1 and 2**	**3 and 4**	**4 and 5**	
Prices	**19/-**	**26/-**	**34/-**	**per doz.**

COMET Hardened and Ground Sleeves (British Made)

These are finely finished high-grade sleeves intended specially for use where accurate drilling has to be done. **They are case-hardened and ground throughout** to accurate tapers, are thoroughly reliable and give long life.

Nos. ...	**1 to 2**	**1 to 3**	**1 to 4**	**1 to 5**	**2 to 3**
Price Each ...	**2/9**	**3/8**	**4/9**	**8/3**	**3/8**
Nos. ...	**2 to 4**	**2 to 5**	**3 to 4**	**3 to 5**	**4 to 5**
Price Each ...	**4/9**	**8/3**	**4/9**	**8/3**	**8/3**

"Use-'Em-Up" Drill Sockets (Made in U.S.A.)



By means of the "Use-'em-up" Drill Sockets, drills with broken shanks can be made as useful as when new. The broken drills simply require a "flat" ground on the shank, when they can be put into either the sockets or sleeves shown here.

SOCKET TYPE

Size	Has Hole No.	Has Shank No.	Price	Size	Has Hole No.	Has Shank No.	Price
1 to 2	1	2	8/4	3 to 4	3	4	13/4
1 ,, 3	1	3	10/5	3 ,, 5	3	5	20/-
1 ,, 4	1	4	13/4	4 ,, 3	4	3	20/-
1 ,, 5	1	5	20/-	4 ,, 4	4	4	20/-
2 ,, 3	2	3	10/5	4 ,, 5	4	5	20/-
2 ,, 4	2	4	13/4	4 ,, 6	4	6	50/-
2 ,, 5	2	5	20/-	5 ,, 4	5	4	50/-
3 ,, 2	3	2	13/4	5 ,, 5	5	5	50/-
3 ,, 3	3	3	13/4	5 ,, 6	5	6	50/-

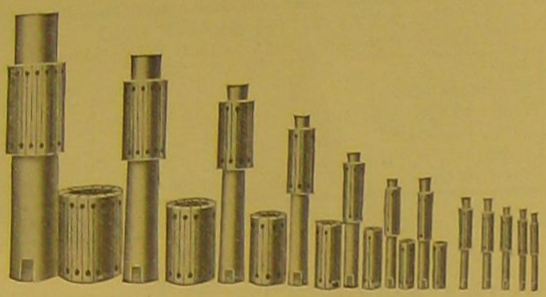
SLEEVE TYPE

Size	Description	Price	Size	Description	Price
1 to 2	Has No. 1 Hole and outside, fitting No. 2 Socket ...	7/6	2 to 5	Has No. 2 Hole and outside, fitting No. 5 Socket ...	18/4
1 ,, 3	,, 1 ,, ,, ,, 3 ,, ...	10/-	3 ,, 4	,, 3 ,, ,, ,, 4 ,, ...	12/6
1 ,, 4	,, 1 ,, ,, ,, 4 ,, ...	12/6	3 ,, 5	,, 3 ,, ,, ,, 5 ,, ...	18/4
1 ,, 5	,, 1 ,, ,, ,, 5 ,, ...	18/4	4 ,, 5	,, 4 ,, ,, ,, 5 ,, ...	18/4
2 ,, 3	,, 2 ,, ,, ,, 3 ,, ...	10/-	4 ,, 6	,, 4 ,, ,, ,, 6 ,, ...	41/8
2 ,, 4	,, 2 ,, ,, ,, 4 ,, ...	12/6	5 ,, 6	,, 5 ,, ,, ,, 6 ,, ...	41/8

Prices of "Use-'Em-Up" Sockets and Sleeves do not include a drift

SOLID AND EXPANDING MANDRELS

Champion Expanding Mandrels (Made in U.S.A.)

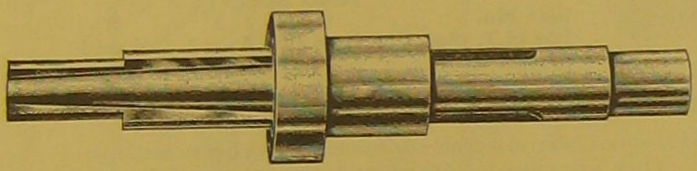


With these Mandrels, any size to the thousandth of an inch can be obtained within the range specified ($\frac{1}{8}$ to $6\frac{1}{2}$ inches).
They are of high-grade steel, hardened and ground, and are practically unwearable.
All sizes from Nos. 1 to 5 inclusive have one flexible sleeve only.
All sizes from No. 6 upwards have two flexible sleeves to obtain maximum expansion.

No.	Price	Range	Length of Arbor	Length of Sleeve
		Ins.	Ins.	Ins.
1	£2 2 0	$\frac{1}{8}$ to $\frac{9}{16}$	$5\frac{1}{2}$	$2\frac{1}{2}$
2	2 6 0	$\frac{9}{16}$,, $\frac{21}{32}$	$6\frac{1}{2}$	$2\frac{3}{4}$
3	2 10 0	$\frac{21}{32}$,, $\frac{3}{4}$	$6\frac{1}{2}$	$2\frac{3}{4}$
4	2 14 6	$\frac{3}{4}$,, $\frac{7}{8}$	$7\frac{1}{2}$	$3\frac{1}{4}$
5	3 2 6	$\frac{7}{8}$,, 1	$7\frac{1}{2}$	$3\frac{1}{4}$
6	5 12 6	1 ,, $1\frac{3}{8}$	$9\frac{1}{4}$	4
7	6 9 0	$1\frac{1}{8}$,, $1\frac{3}{8}$	$9\frac{1}{4}$	4
8	7 6 0	$1\frac{3}{8}$,, 2	$11\frac{1}{2}$	5
9	11 1 0	2 ,, $2\frac{3}{4}$	$14\frac{1}{2}$	$5\frac{1}{2}$
10	15 12 6	$2\frac{3}{4}$,, $3\frac{3}{4}$	17	6
11	25 0 0	$3\frac{3}{4}$,, 5	20	7
12	31 5 0	5 ,, $6\frac{1}{2}$	24	8

Price, for Complete Set £110 10 0

Lecount's Patent Expanding Mandrel (Made in U.S.A.)



This illustration shows the form in which all the smaller sizes of Mandrels are made. Nos. 4 and 5 are made with a nut and screw to work the sliding keys. They are all made of steel, with the working parts carefully tempered.

Directions.—To tighten the work, drive with a copper hammer, or a piece of soft iron or brass, on the large end (not too hard). To loosen, drive on small end.

Prices

No. 0 (Amateur).—$\frac{3}{8}$ to 1 inch £1 0 10
,, **1** $\frac{1}{2}$,, 1 ,, ... 2 1 8
,, **2** 1 ,, $1\frac{1}{2}$,, ... 2 18 4
No. 3.—$1\frac{1}{2}$ to 2 inch £3 15 0
,, **4.**—2 ,, 3 ,, with Nut and Screw ... 6 13 4
,, **5.**—3 ,, 4 ,, with Nut and Screw ... 9 3 4

Morse Pattern Steel Mandrel (British Made)

Hardened throughout and Ground

The Mandrels are tapered ·01 inch in 12 inches, and fit holes reamed by Morse reamers.

Diameter	Price Each	Length Overall	Diameter	Price Each	Length Overall	Diameter	Price Each	Length Overall
Ins.		Ins.	Ins.		Ins.	Ins.		Ins.
$\frac{3}{16}$	5/–	—	$1\frac{5}{16}$	12/6	$8\frac{1}{4}$	$2\frac{7}{16}$	41/8	$12\frac{1}{2}$
$\frac{1}{4}$	4/2	$3\frac{3}{4}$	$1\frac{3}{8}$	13/7	$8\frac{1}{2}$	$2\frac{1}{2}$	43/9	$12\frac{1}{2}$
$\frac{5}{16}$	4/2	4	$1\frac{7}{16}$	14/7	$8\frac{3}{4}$	$2\frac{9}{16}$	46/11	$12\frac{1}{2}$
$\frac{3}{8}$	4/2	$4\frac{1}{4}$	$1\frac{1}{2}$	15/8	9	$2\frac{5}{8}$	50/-	$12\frac{1}{2}$
$\frac{7}{16}$	4/7	$4\frac{1}{2}$	$1\frac{9}{16}$	16/8	$9\frac{1}{4}$	$2\frac{11}{16}$	53/2	13
$\frac{1}{2}$	5/-	5	$1\frac{5}{8}$	17/9	$9\frac{1}{2}$	$2\frac{3}{4}$	56/3	13
$\frac{9}{16}$	5/5	$5\frac{1}{4}$	$1\frac{11}{16}$	18/9	$9\frac{3}{4}$	$2\frac{13}{16}$	59/5	13
$\frac{5}{8}$	5/10	$5\frac{1}{2}$	$1\frac{3}{4}$	19/10	10	$2\frac{7}{8}$	62/6	13
$\frac{11}{16}$	6/3	$5\frac{3}{4}$	$1\frac{13}{16}$	20/10	$10\frac{1}{4}$	$2\frac{15}{16}$	65/8	13
$\frac{3}{4}$	6/8	6	$1\frac{7}{8}$	22/11	$10\frac{1}{2}$	3	68/9	13
$\frac{13}{16}$	7/1	$6\frac{1}{4}$	$1\frac{15}{16}$	25/-	$10\frac{3}{4}$	$3\frac{1}{8}$	75/-	14
$\frac{7}{8}$	7/9	$6\frac{1}{2}$	2	27/1	11	$3\frac{1}{4}$	81/3	14
$\frac{15}{16}$	8/4	$6\frac{3}{4}$	$2\frac{1}{16}$	29/2	$11\frac{1}{2}$	$3\frac{3}{8}$	87/6	15
1	9/-	7	$2\frac{1}{8}$	31/3	$11\frac{1}{2}$	$3\frac{1}{2}$	95/10	15
$1\frac{1}{16}$	9/7	$7\frac{1}{4}$	$2\frac{3}{16}$	33/4	12	$3\frac{5}{8}$	104/2	16
$1\frac{1}{8}$	10/3	$7\frac{1}{2}$	$2\frac{1}{4}$	35/5	12	$3\frac{3}{4}$	112/6	16
$1\frac{3}{16}$	10/10	$7\frac{3}{4}$	$2\frac{5}{16}$	37/6	12	$3\frac{7}{8}$	120/10	17
$1\frac{1}{4}$	11/8	8	$2\frac{3}{8}$	39/7	12	4	129/2	17

LATHE DOGS

Williams' "Vulcan" Lathe Dogs (Made in U.S.A.)

NON-SAFETY BENT TAIL DOG
Nos. 1 to 13

NON-SAFETY BENT TAIL DOG HEAVY DUTY PATTERN
Nos. 112 to 114

NON-SAFETY STRAIGHT TAIL DOG
Nos. 21 to 33

With Square Head Screws

These Lathe Dogs are forged from a special grade of tough steel hardened and tempered and which at the same time possesses stiffness which is essential in a good lathe dog.
The screws are made from alloy steel, and are hardened on the point, the improved shape of which also renders them less liable to "flange" or upset.

Light Pattern with Single Screw

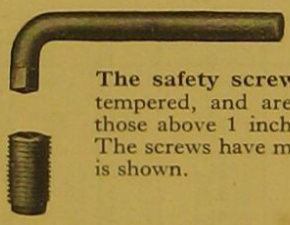
No. Bent Tail	No. Straight Tail	Capacity Inches	Size of Screw Inches	Price Each	Extra Screws Each
1	21	$\frac{3}{8}$	$\frac{5}{16} \times 1\frac{1}{4}$	4/2	0/8
2	22	$\frac{1}{2}$	$\frac{3}{8} \times 1\frac{1}{4}$	4/7	0/10
3	23	$\frac{3}{4}$	$\frac{7}{16} \times 1\frac{5}{8}$	5/-	1/-
4	24	1	$\frac{1}{2} \times 2$	5/10	1/3
5	25	$1\frac{1}{4}$	$\frac{1}{2} \times 2\frac{1}{4}$	7/1	1/4
6	26	$1\frac{1}{2}$	$\frac{9}{16} \times 2\frac{3}{8}$	8/4	1/6
7	27	$1\frac{3}{4}$	$\frac{5}{8} \times 2\frac{1}{2}$	10/-	1/8
8	28	2	$\frac{11}{16} \times 2\frac{3}{4}$	11/8	1/11
9	29	$2\frac{1}{2}$	$\frac{11}{16} \times 3$	15/-	2/-
10	30	3	$\frac{3}{4} \times 3\frac{1}{4}$	19/2	2/3
11	31	$3\frac{1}{2}$	$\frac{7}{8} \times 3\frac{1}{2}$	25/-	2/8
12	32	4	$\frac{7}{8} \times 3\frac{3}{4}$	37/6	2/11
13	33	5	$1 \times 4\frac{1}{2}$	66/8	4/2
Heavy Pattern with Two Screws					
112	132	4	$\frac{7}{8} \times 3\frac{3}{4}$	66/8	2/11
113	133	5	$1 \times 4\frac{1}{2}$	100/-	4/2
114	134	6	$1 \times 4\frac{1}{2}$	141/8	4/2

BENT TAIL SAFETY DOG
Nos. 1 to 13

STRAIGHT TAIL SAFETY DOG
Nos. 21 to 33

Williams' "Vulcan" Safety Lathe Dogs (Made in U.S.A.)

With Safety Headless Screws



"Vulcan" Lathe Dogs can be supplied with straight or bent tail in light or heavy pattern.
The safety screws are of special steel hardened and tempered, and are threaded U.S. Standard except that those above 1 inch diameter have eight threads per inch. The screws have mortised head for which a special wrench is shown.

Light Pattern with Single Screw

No. Bent Tail	No. Straight Tail	Capacity Inches	Size of Screw Inches	Price of Dog Each	Wrench Each	Extra Screws Each
1	21	$\frac{3}{8}$	$\frac{7}{16} \times \frac{5}{8}$	4/2	0/6	0/10
2	22	$\frac{1}{2}$	$\frac{9}{16} \times \frac{13}{16}$	4/7	0/7	1/-
3	23	$\frac{3}{4}$	$\frac{5}{8} \times 1\frac{1}{16}$	5/-	0/8	1/3
4	24	1	$\frac{11}{16} \times 1\frac{1}{4}$	5/10	0/8	1/6
5	25	$1\frac{1}{4}$	$\frac{3}{4} \times 1\frac{3}{8}$	7/1	0/10	1/9
6	26	$1\frac{1}{2}$	$\frac{13}{16} \times 1\frac{5}{8}$	8/4	1/-	2/1
7	27	$1\frac{3}{4}$	$\frac{7}{8} \times 1\frac{1}{2}$	10/-	1/-	2/6
8	28	2	$1 \times 1\frac{7}{8}$	11/8	1/3	3/-
9	29	$2\frac{1}{2}$	$1\frac{1}{8} \times 2$	15/-	1/7	3/7
10	30	3	$1\frac{1}{4} \times 2\frac{1}{8}$	19/2	2/-	4/4
11	31	$3\frac{1}{2}$	$1\frac{3}{8} \times 2\frac{1}{8}$	25/-	2/6	5/3
12	32	4	$1\frac{1}{2} \times 2\frac{5}{8}$	37/6	3/1	6/3
13	33	5	$1\frac{5}{8} \times 3\frac{1}{8}$	66/8	3/9	7/6
Heavy Pattern with Two Screws						
112	132	4	$1\frac{1}{2} \times 2\frac{5}{8}$	66/8	3/1	6/3
113	133	5	$1\frac{5}{8} \times 3\frac{1}{8}$	100/-	3/9	7/6
114	134	6	$1\frac{3}{4} \times 3\frac{1}{8}$	141/8	4/7	9/7

HEAVY DUTY BENT TAIL SAFETY DOG
Nos. 112 to 114

HEAVY DUTY STRAIGHT TAIL SAFETY DOG
Nos. 132 to 134

LATHE & MILLING M/c. DOGS AND "C" CLAMPS

Williams' "Vulcan" Clamp Lathe Dogs, Nos. 61 to 64 (Made in U.S.A.)

The drop forgings of tough grade steel from which these dogs are made, are heat treated after forging to increase further their stiffness and strength and reduce liability of springing.

Hardened and tempered screws are threaded U.S. Standard, and nuts are case-hardened.

No.	61	62	63	64
Capacity, max. opening, ins.	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{2}$	$3\frac{1}{4}$
Screws, diam. × length, ins.	$\frac{5}{16}\times2\frac{3}{4}$	$\frac{3}{8}\times3\frac{5}{16}$	$\frac{7}{16}\times4\frac{1}{4}$	$\frac{1}{2}\times5\frac{3}{8}$
Price, each	12/6	16/8	20/10	29/2

Williams' "Vulcan" Milling Machine Dogs, Nos. 42 to 48

(Made in U.S.A.)

For taper work carried between centres on milling machines, the flat tail works in the head-slot without the back-lash unavoidable in dogs with taper tail. **The heads are sufficiently large to permit re-tapping for wear.** Screws are U.S. Standard thread.
These dogs can also be used as heavy pattern lathe dogs.

No.	42	43	44	45	46	47	48
Capacity, ins.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Screws, diam. × length, ins.	$\frac{3}{8}\times1\frac{1}{4}$	$\frac{7}{16}\times1\frac{5}{8}$	$\frac{1}{2}\times2$	$\frac{1}{2}\times2\frac{1}{4}$	$\frac{9}{16}\times2\frac{3}{8}$	$\frac{5}{8}\times2\frac{1}{2}$	$\frac{11}{16}\times2\frac{3}{4}$
Price, each	4/7	5/–	5/10	7/1	8/4	10/–	11/8
Extra Screws, each	–/10	1/–	1/3	1/4	1/6	1/8	1/11

Williams' "Vulcan" Heavy Duty "C" Clamps (Made in U.S.A.)

These clamps are of very robust proportions, made of drop-forged heat treated steel which reduces liability to spring.

Screws are hardened and tempered and threaded U.S. Standard.

Minimum capacities with Standard screws are shown below, but can be reduced to 0 by using long screws.

No.	Capacity, Ins.		Depth of Thread Ins.	Size of Body Ins.	Size of Screw Ins.	Price Each Clamp with Standard Screw	Extra Screws Each	
	Max.	Min.					Standard	Long
0	$\frac{3}{4}$	0	$\frac{3}{4}$	$2\frac{1}{4}\times2$	$\frac{5}{16}\times1\frac{1}{2}$	4/2	0/10	—
1	$1\frac{1}{4}$	0	$1\frac{1}{8}$	$3\frac{1}{4}\times2\frac{3}{4}$	$\frac{3}{8}\times2\frac{1}{4}$	6/3	1/-	—
$1\frac{1}{2}$	$1\frac{3}{4}$	$\frac{11}{16}$	$1\frac{1}{2}$	$4\frac{1}{4}\times3\frac{5}{8}$	$\frac{1}{2}\times2\frac{1}{4}$	10/5	1/2	3/4
2	$2\frac{1}{4}$	$\frac{7}{8}$	$1\frac{3}{4}$	$5\frac{1}{2}\times4\frac{1}{2}$	$\frac{5}{8}\times2\frac{7}{8}$	14/7	1/8	4/10
3	$3\frac{1}{4}$	$1\frac{5}{16}$	$2\frac{3}{8}$	$7\frac{1}{4}\times5\frac{3}{4}$	$\frac{3}{4}\times3\frac{3}{4}$	20/10	2/4	6/6
4	$4\frac{1}{2}$	2	$2\frac{3}{4}$	$8\frac{7}{8}\times6\frac{1}{2}$	$\frac{7}{8}\times4\frac{1}{2}$	27/1	3/2	8/4
5	$5\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{8}$	$10\frac{3}{8}\times7$	$\frac{7}{8}\times5\frac{3}{8}$	33/4	4/2	10/5
6	$6\frac{1}{2}$	$3\frac{1}{16}$	$3\frac{3}{8}$	$12\times7\frac{7}{8}$	$1\times5\frac{7}{8}$	41/8	5/5	12/11
8	$8\frac{1}{2}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$14\frac{3}{8}\times8\frac{1}{2}$	$1\frac{1}{8}\times7$	58/4	7/1	17/6
$10\frac{1}{2}$	$10\frac{1}{2}$	$6\frac{3}{8}$	$4\frac{1}{8}$	$16\frac{7}{8}\times9$	$1\frac{1}{8}\times7$	79/2	7/1	21/3
$12\frac{1}{2}$	$12\frac{1}{2}$	$7\frac{5}{8}$	$4\frac{1}{2}$	$19\frac{3}{8}\times9\frac{3}{4}$	$1\frac{1}{4}\times8$	104/2	10/-	30/-

Williams' "Agrippa" General Service "C" Clamps (Made in U.S.A.)

The light design of these clamps enables them to provide the service formerly rendered by the heavier and clumsier steel clamps made by other processes. **They are drop-forged** and their liability to spring is definitely reduced by heat treatment process.

Screws are U.S. Standard thread, fitted with adjustable handles. Swivels are drop-forged.

No.	Capacity, Ins.		Depth of Throat Ins.	Size of Body Ins.	Size of Screw with Swivel Ins.	Price Complete Each	Extra Screw, Handle and Swivel Each
	Max.	Min.					
104	4	$\frac{5}{8}$	$2\frac{3}{8}$	$8\frac{1}{4}\times5\frac{1}{8}$	$\frac{3}{4}\times6$	18/9	5/10
106	6	$2\frac{5}{8}$	$2\frac{1}{2}$	$10\frac{3}{8}\times5\frac{3}{8}$	$\frac{3}{4}\times6$	22/11	5/10
108	8	$4\frac{11}{16}$	$2\frac{5}{8}$	$12\frac{1}{2}\times5\frac{1}{8}$	$\frac{3}{4}\times6$	27/1	5/10
110	10	$6\frac{11}{16}$	$2\frac{3}{4}$	$14\frac{5}{8}\times5\frac{3}{4}$	$\frac{3}{4}\times6$	31/3	5/10
112	12	$8\frac{11}{16}$	$2\frac{7}{8}$	$16\frac{7}{8}\times6$	$\frac{3}{4}\times6$	35/5	5/10
115	15	10	$3\frac{1}{16}$	$20\frac{1}{4}\times6\frac{1}{2}$	$\frac{7}{8}\times8\frac{1}{8}$	45/10	10/-
118	18	13	$3\frac{1}{4}$	$23\frac{1}{2}\times7$	$\frac{7}{8}\times8\frac{1}{8}$	58/4	10/-

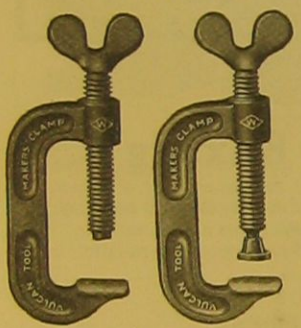
TOOLMAKERS' & MACHINISTS' CLAMPS

Williams' "Light Service" Clamps (Made in U.S.A.)

The Williams' "Light Service" Clamp is best adapted for use where the conditions do not demand the strength and service which the "Vulcan" and "Agrippa" Clamps provide.
Drop-forged from special steel, toughened by special treatment, and equipped with a rapid-moving wrought-steel screw.

No.	Capacity, Ins. Max.	Capacity, Ins. Min.	Depth of Throat Ins.	Size of Body Ins.	Size of Screw Ins.	Price Each Complete	Extra Screw Handle and Swivel, Each
502	2	0	1¾	4⅜ × 3¼	½ × 4⅜	6/3	2/6
503	3	0	2	5½ × 3⅝	½ × 5⅜	7/6	2/11
504	4	0	2⅜	6⅞ × 4⅜	⅝ × 7	9/2	3/4
506	6	0	3	9⅜ × 5¼	⅝ × 8¼	12/6	4/2
508	8	2	3⅜	11⅞ × 5⅞	¾ × 10	16/8	5/-
510	10	3	3¾	14⅛ × 6⅜	¾ × 11	20/10	6/3
512	12	4	4	16⅜ × 6⅞	13/16 × 12½	27/1	8/4

Williams' "Vulcan" Tool-makers "C" Clamps, Nos. 201 to 204 (Made in U.S.A.)

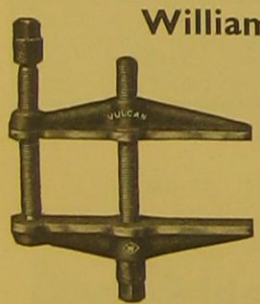


CLAMP WITH PLAIN SCREW — CLAMP WITH REMOVABLE SWIVEL SCREW

The steel used in the construction of these tools is of strong, tough quality, drop-forged and specially processed to reduce spring.
The screws are threaded U.S. Standard and have wings so formed as to permit use of lever.
Clamps are supplied in two finishes.
Black, which are oil treated only.
Bright, surfaces and edges of clamp are ground, panel black.

No.	Capacity Ins.	Depth of Throat Ins.	Size of Body Ins.	Size of Screw Ins.	Price Each Clamp with Plain Screw Black	Price Each Clamp with Plain Screw Bright	Extra Plain Screw Each	Price Each Clamp with Removable Swivel Screw Black	Price Each Clamp with Removable Swivel Screw Bright	Extra Swivel Screws Each
201	1	11/16	2⅛ × 1½	5/16 × 1 11/16	4/2	5/5	1/8	6/3	7/6	3/9
202	2	13/16	3⅜ × 1⅞	⅜ × 2 7/16	5/5	6/8	2/1	7/6	8/9	4/2
203	3	15/16	4½ × 2⅛	⅜ × 3 3/16	7/1	8/9	2/6	9/7	11/3	5/-
204	4	1⅛	6⅜ × 2½	7/16 × 4⅛	10/5	12/6	3/4	13/4	15/5	6/3

Williams' "Vulcan" Machinists' Clamps, Nos. 301 to 304 (Made in U.S.A.)

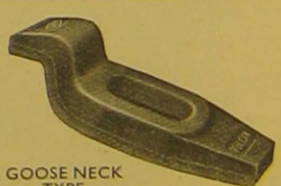


Drop-forged and heat treated. The knurled part of the hardened and tempered screw permits rapid and easy adjustment . Edges of jaws are ground bright.

No.	Capacity, Ins. Max. Opening	Capacity, Ins. Length Jaws from Screw	Size Screws, Ins. End Screws	Size Screws, Ins. Centre Screw	Price Each Complete	Extra Screws Each
301	1¼	1¾	5/16 × 2⅛	5/16 × 2⅝	12/6	2/1
302	2¼	2¼	⅜ × 3¼	⅜ × 3 15/16	16/8	2/11
303	3¼	2¾	7/16 × 4⅜	7/16 × 5¼	20/10	4/2
304	4¼	3¼	½ × 5¾	½ × 6½	25/-	5/10

Williams' "Vulcan" Strap Clamps (Made in U.S.A.)

Plain, Adjustable and Goose-neck



GOOSE NECK TYPE

These forgings are made from a strong, tough grade of steel and are heat treated after forging which increases their strength and stiffness.
On Planer, Lathe, Drill Press, Milling and Boring Machine work they are time-saving and effective.

PLAIN TYPE

Prices—Plain and Adjustable Types

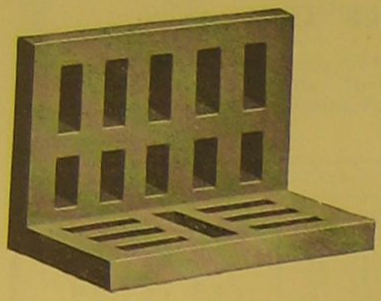
Clamp No. Plain	Clamp No. Adjustable	Length Ins.	Width, Ins. Ends	Width, Ins. Centre	Thickness, Ins. Ends	Thickness, Ins. Centre	Slot Min. Dimensions Ins. Length	Slot Min. Dimensions Ins. Width	Price Plain Type	Price Adjustable Type Each
54	54A	4	1 3/16	1⅛	¼	¾	1⅜	11/16	2/6	4/7
56	56A	6	1¼	1½	5/16	¾	2 1/16	11/16	4/2	7/1
58	58A	8	1½	2¼	⅜	1⅛	2 13/16	13/16	7/1	10/10
59	59A	10	1¾	2½	7/16	1⅜	3 11/16	15/16	11/8	16/8

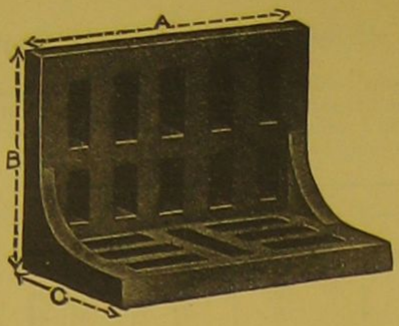
ADJUSTABLE TYPE

Price—Goose Neck Type

No.	Length Ins.	Width, Ins. Ends	Width, Ins. Centre	Thickness, Ins. Ends	Thickness, Ins. Centre	Slot Min. Dimensions, Ins. Length	Slot Min. Dimensions, Ins. Width	Neck Offset Ins.	Price
74	4	1 3/16	1⅛	¼ and ⅛	¾	1 11/16	11/16	13/16	2/6
76	6	1¼	1½	7/16 " 5/16		1 15/16	11/16	11/16	4/2
78	8	1½	2¼	9/16 " ⅜	1½	2 7/16	13/16	1⅛	7/1

ANGLE PLATES AND TILTING TABLE





Angle Plates (British Made)

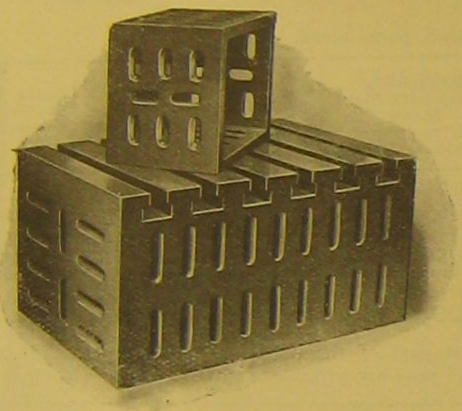
These Angle Plates are strong and well proportioned. Type A are without webs and planed all over. Type B are with webs and planed outside faces and edges. Angle Plates with webs cannot be supplied planed all over. They can be furnished at the following prices:—

No. 2618—Machines outside faces and all edges.

No. 2617—Machined all over.

Model No.	104	107	108	111	113	115	116	120	119	118	122	123	125	126	129	128	131	136	138	141	143
Length A ... ... ins	3	4	4	4½	5	6	6	8	8	7	9	9	10	10	12	12	12	16	16	18	24
Height B ... ... ,,	2½	2½	3	4	4	5	6	5½	4	5½	5½	9	6	8	9	6	12	9	12	12	12
Base C ... ... ,,	2	2½	3	3	4	4½	6	4½	3½	4½	3½	9	6	6	9	4½	12	9	12	8	12
No. 2618, Machined outside faces and edges Price Each	3/6	5/3	5/6	7/6	9/-	11/3	12/-	15/-	13/6	13/6	15/9	22/6	22/6	24/-	28/6	25/6	43/6	48/-	54/-	57/-	78/-
No. 2617, Planed all over Price Each	4/9	7/3	8/-	9/9	12/-	15/-	15/9	18/9	17/3	17/3	19/6	28/6	28/6	30/-	36/-	31/6	57/-	61/6	72/-	78/-	105/-

The Angle Plates can also be supplied in other sizes. Prices on request.



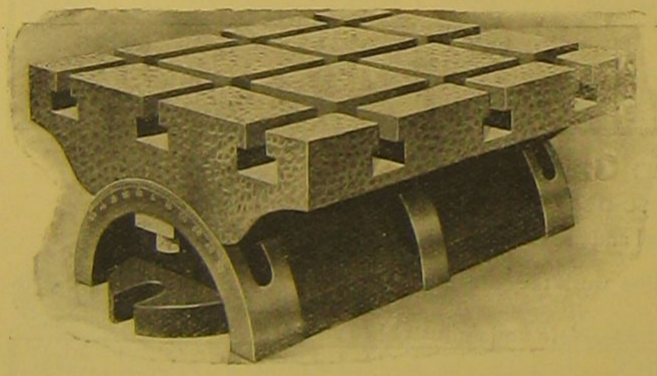
Box Angle Plate or Box Jig (British Made)

This Box Angle Plate or Box Jig is open at the bottom side only, which enables work to be operated upon five different faces at one setting, thus ensuring all holes or surfaces being perfectly square and parallel with each other.

DIMENSIONS AND PRICES

Size Nos.	1	2	3	4	5	6	7
Length ... ins.	6	7½	9	12	18	24	30
Height ... ,,	5	6	7	10	12	18	24
Base ... ,,	4½	5	6	9	9	15	18
Price	**27/6**	**36/9**	**50/-**	**81/9**	**150/-**	**280/-**	**420/-**

Machined on all faces and T slots to fit bolt shanks only.



Tilting Table (British Made)

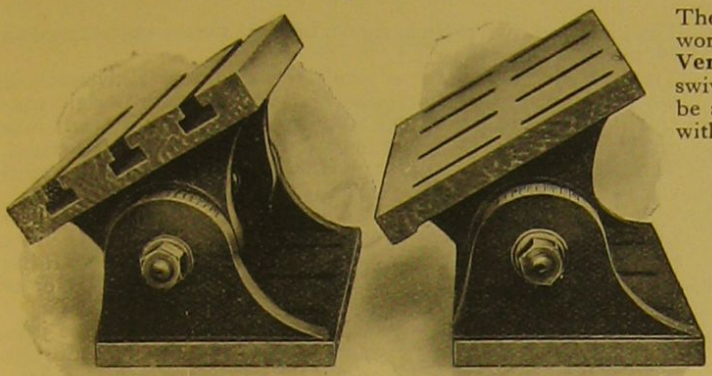
This table is a particularly useful appendage to any machine tool. When used on the milling machine, often saves expensive angle cutters. **Is graduated to swivel each way,** enabling work to be done at varying angles. The **T** slots are machined all over.

DIMENSIONS AND PRICES

Nos.	0	1	2	3	4	5	6	7	8	9	10	11
Length ... ... ins.	8	8	10	10	12	12	15	15	18	18	24	24
Breadth ... ... ,,	4	6	5	7½	6	9	7½	11¼	9	13½	12	18
Height ... ... ,,	3¼	3¼	3⅞	3⅞	4½	4½	5⅜	5⅜	6¼	6¼	8	8
Breadth of Base ,,	4	4	5	5	6	6	7½	7½	9	9	12	12
Swivels each way, deg.	45	35	45	35	45	35	45	35	45	35	45	35
Prices	**70/-**	**84/-**	**91/-**	**101/6**	**112/-**	**128/-**	**140/-**	**157/6**	**182/-**	**261/-**	**306/-**	**342/-**

ANGLE PLATES AND VEE BLOCKS

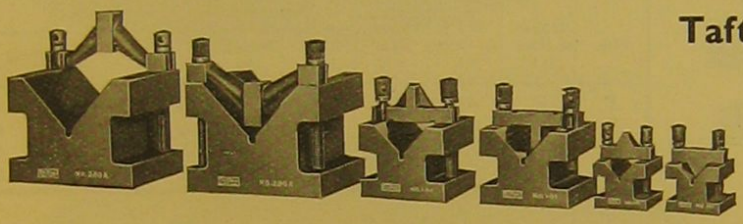
Adjustable Swivel Angle Plate (British Made)



These Angle Plates are indispensable in machining angular work. **Swivel is graduated** from 0 to 90 deg. to facilitate setting. **Very strong and rigid.** A machine vice may be fixed on the swivelling table if desired. At a small extra charge, any size will be altered to take customers' own vices. The table may be had. with ⊥ slots, instead of the plain slots shown.

Nos. ...	1	2	3	4	5	6	7
Length, ins.	6	8	10	12½	15	20	24
Breadth, ,,	5	6	8	10	12	15	16
Prices with Ordinary Slots	73/6	86/9	106/9	133/6	186/9	266/9	346/9
Prices with ⊥ Slots	80/9	95/6	117/6	147/–	205/6	293/6	381/6

Taft-Peirce Vee Blocks (Made in U.S.A.)

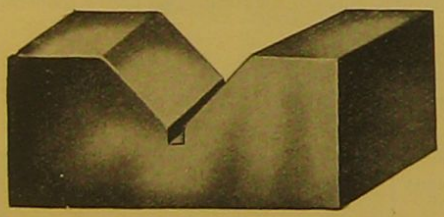


These standardised "V" blocks are for general machine shop and tool-room use. They are particularly adaptable to milling, planing, shaping, grinding and general inspection work. **They are made of hardened and ground alloy steel, numbered for identification and are sold in pairs only.**

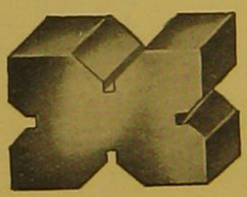
The blocks in each pair are identical in size. The Vee is central with the sides and parallel with the bottom. All surfaces except the top are square or parallel with each other.

A pair of drop-forged, heat treated clamps, quickly removable, are supplied with each pair of blocks.

Style No.	9128	9129	9130
Width, ins.	1⅜	2⅜	4
Length, ins.	1⅜	2⅛	2⅞
Height, ins.	1⅛	1⅞	2⅞
Price, per pair	**£4 10 6**	**£7 11 0**	**£10 17 6**



No. 1



No. 3

Vee Blocks (British Made)

Cast-Iron Vee Blocks, No. 1

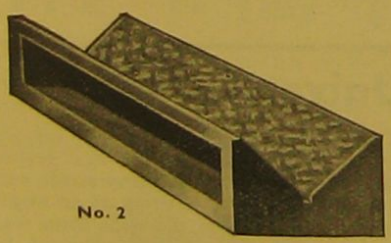
With One Vee. Machined all over

Size, Square	2×1	2½×1¼	3×1½	4×2	6×3	ins.
Price ...	**4/6**	**5/–**	**6/–**	**11/6**	**24/9**	**per pair**

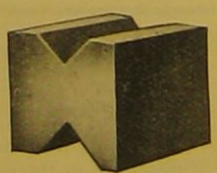
Long Vee Blocks, No. 2

Machined and Hand Scraped

Length ...	4	6	8	11¾	ins.
Breadth ...	1½	2	3	4	,,
Height ...	1	1½	2	3	,,
Price ...	**10/–**	**13/6**	**16/9**	**20/–**	**each**
,, ...	**20/–**	**27/–**	**33/6**	**40/–**	**per pair**



No. 2



No. 4

Vee Blocks, No. 3

With Vees of Four Different Sizes

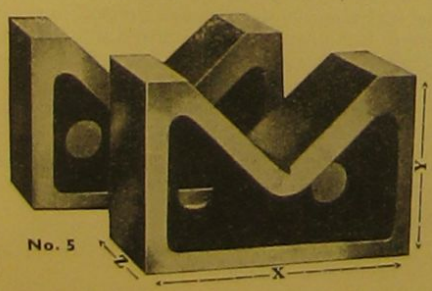
Size	4¼×4×3	6×5½×3	ins.
Price ...	**40/–**	**66/9**	**per pair**

Small Sizes Vee Blocks, No. 4

With Two Vees

Size	1×1	1¼×1¼	ins.
Price, polished ...	**6/–**	**8/–**	**per pair**

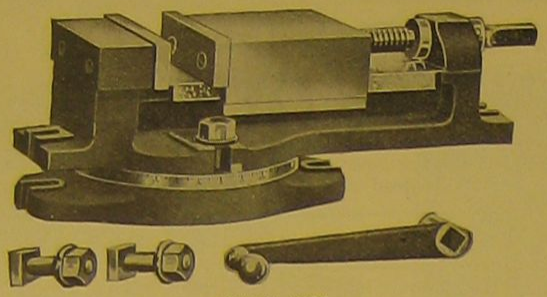
Cast-Iron Vee Blocks, No. 5 (British Made)



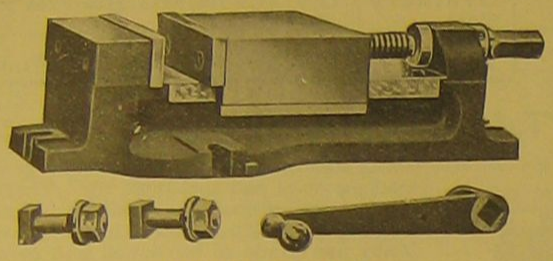
No. 5

These Blocks are of cast iron, machined and accurately finished in pairs. The vees form a true angle of 90 degrees and sides are concave as shown in illustration.

Width, X ... ins.	3	4	5	7	8	9	11½	13	15	18	24
Height, Y ... ,,	2½	3	3½	4½	5	5¾	7⅛	8¼	9½	11½	14
Depth, Z ... ,,	1¼	1½	1¾	2	2¼	2½	2¾	3	3½	3½	4
Width across top of vee ... ,,	2	3	4	5	6	7	8	10	12	15	18
Prices per pair	**11/9**	**15/–**	**20/–**	**28/6**	**36/9**	**48/6**	**65/–**	**113/6**	**140/–**	**175/–**	**241/9**



SWIVEL VICE



PLAIN FLANGED VICE

Churchill Machine Vices (British Made)

The Plain and Swivel Vices shown here are those regularly used on Milling Machines.

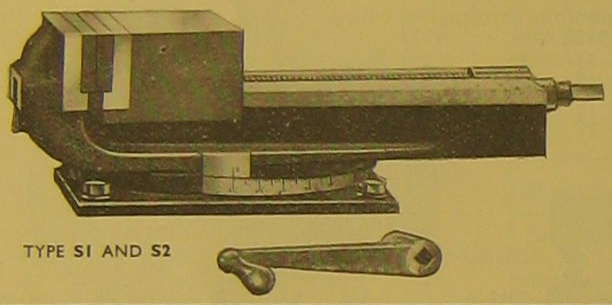
The Swivel Vice shown is regularly used on all Universal and the smaller sizes of Plain Millers. It is of unusually rigid construction and holds the work close to the table. Its swivel base can be removed, thus converting it into a Plain Vice as illustrated. This combination gives users of Universal Millers both a swivel vice for special work and a plain vice for heavy plain milling.

The Plain Flanged Vice shown is used on the larger Plain Millers and on all Vertical Millers. Its under side is formed to receive a swivel base, to convert it into a swivel vice when desired. It has detachable tongues so that it may be used either parallel or at right angles to the table.

Both patterns have jaws made of steel and the ends of the jaws project for convenience in clamping long work in an upright position.

No.	Depth of Jaws Ins.	Width of Jaws Ins.	Jaws Open Ins.	Weight		Price Each	
				Plain Lbs.	Swivel Lbs.	Plain	Swivel
1	1¼	4⅛	2	21	33	£4 15 0	£6 3 6
2	1⅜	5⅛	2¾	35	40	5 17 6	7 17 6
3	1⅝	6⅛	3½	58	75	8 5 0	9 17 6
4	2	7⅛	5⅛	106	135	13 0 0	16 5 0

Churchill "CR" Heavy Duty Swivel Machine Vices (British Made)



TYPE S1 AND S2

With swivelling base in which the four bolts used for clamping the swivel are also used for securing the Vice to machine table.

This arrangement keeps the height of the vice down to the minimum, and not only makes it unusually strong and robust, but helps to eliminate spring during heavy machining operations.

Jaws are of hardened steel.

Made in two styles :—Type S with single screw, and Type D with two screws independently adjusted.

Type No.	Depth of Jaws Ins.	Width of Jaws Ins.	Jaws Open Ins.	Height of Vice Body Ins.	Size of Base Ins. Sq.	Bolt Centres in Bed Ins.	Diam. of Bolts Ins.	Weight Lbs.	Price Each
S1	2½	12	13	4¾	13½	10½ × 11½	⅝	273	£18 10 0
S2	3	15	15	5	15½	12½ sq.	¾	433	23 0 0
D1	2½	12	13	4¾	13½	10½ × 11½	⅝	248	17 10 0
D2	3	15	15	5	15½	12½ sq.	¾	458	21 0 0

"Cincinnati" Toolmakers' Universal Vice (Made in U.S.A.)

Substantially constructed yet simple in design this Vice consists of three parts only: the base, the swivel and the vice proper. **The vice may be set and rigidly clamped at any angle** with the table or the spindle of the machine. **For setting at an angle with the spindle,** it is swivelled on its base, the angle being read direct in degrees from the large dial. It is then clamped by means of bolts, which engage a T-slot in the base. It may be set at any angle up to and including 90 degrees in a vertical position, the means for clamping in this position being simple and efficient. **A dial reading in degrees** is also provided for setting to the desired angle in this position.

Made for use with Cincinnati Milling Machines, **18 inch and Nos. 1, 2 and 3. Also Nos. 4 and 5.**

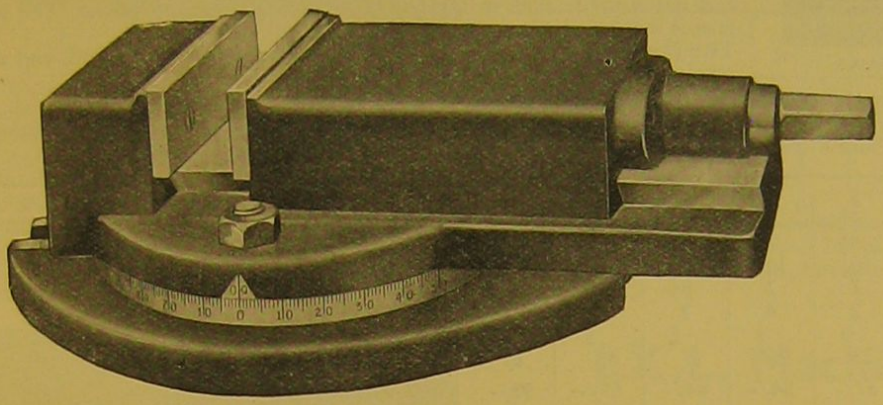
Jaws, width × depth, 6 × 1 7/16 in. Jaws open, 3½ ins. Distance, top of Table to top of Jaws, 9¼ ins. Net weight, about, 75 lbs.

Price on application.

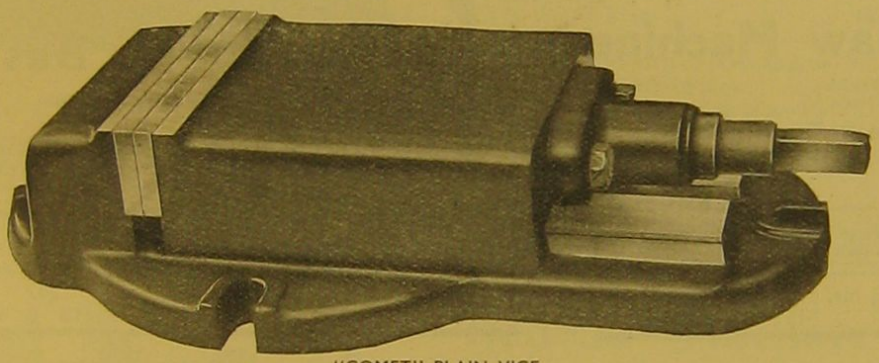
Style of machine on which Vice is to be used should always be stated when ordering.

COMET Machine Vices (British Made)

For use on Milling, Grinding, Shaping and Drilling Machines



'COMET" VICE WITH GRADUATED SWIVEL BASE



"COMET" PLAIN VICE

Particularly recommended for precision work "Comet" Machine Vices embody the highest grade materials and workmanship in their construction.

Their design is such that perfect accuracy without any "lift" is maintained throughout their life. A perfect, rigid grip with lasting service is always obtained.

Bodies are of semi-steel.

The sliding jaw runs on "V" slides, has long bearing surfaces and is fitted with adjustment for wear.

Jaw plates are of oil hardening tool steel, accurately ground.

The totally enclosed hardened steel screw cannot become seized or damaged. Nut is of phosphor bronze.

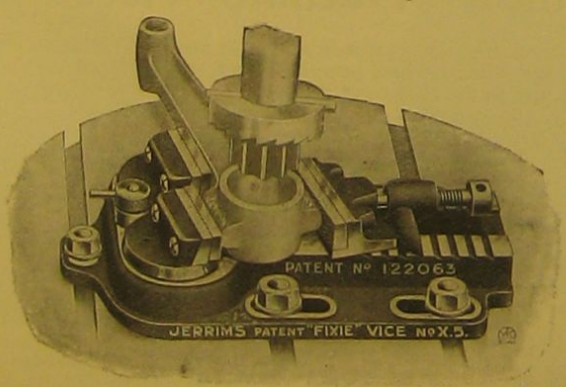
All parts are thoroughly inspected at each stage of manufacture to ensure perfect uniformity.

No.	Depth of Jaws Ins.	Width of Jaws Ins.	Jaws Open Ins.	Approx. Weight, Lbs.		Price Each	
				Swivel Base	Plain	Swivel Base	Plain Type
1	1½	3	2½	24	18	£5 5 0	£3 13 6
2	1 9/16	4½	4	54	38	6 16 6	4 9 3
3	2	6	5	94	65	7 12 3	4 19 9
4	2	6	6½	114	76	8 13 3	6 0 9
5	2	8	8	150	122	13 2 6	9 3 9

The "Fixie" Machine Vice-Jig (British Made)

The "Fixie" is a vice-jig having three adjustable jaws, which can be moved to any angle. Two of the jaws can be locked in the required position, and the third one is free to swivel at the end of the cramping screw, and accommodates itself in the most convenient position when the work is cramped up.

By this means, spherical, round, and irregular-shaped pieces are quickly and effectively held and repetition work can be readily located in the same position. For many classes of work the use of special jigs is thus unnecessary.

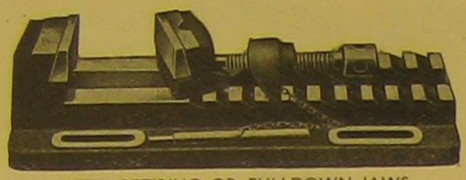


The body is of an alloy steel casting, accurately machined and hand scraped, and the other parts of mild steel, case-hardened where necessary.

Every part is inspected at each operation to maintain the workmanship at a consistently high quality.

Sizes and Prices

No.	Between Jaws Ins.	Depth of Jaws Ins.	Width of Round Jaws Ins.	Width of Square Jaws Ins.	Size Overall Ins.	Price
X1	2½	⅝	1¼	1½	7½ × 3½	£2 10 0
X4	4	1¼	2½	3	12 × 6½	5 18 6
X5	6	1½	3	4	15½ × 8½	6 18 6
X6	9	2	3½	5	20¼ × 10	9 17 6
X7	12	2	4	6	24 × 10½	12 15 0
X8	18	2½	5	8	34½ × 13	22 10 0



WITH RETIRING OR PULLDOWN JAWS

"XL" Improved Machine Vices

(British Made)

With Plain Base and Retiring Jaws.

This vice is for use on planing, shaping, milling, and drilling machines, and has suitable slots in the base for holding-down purposes. The top face is machined true with the base.

The jaws are faced with tool steel, hardened and tempered, and are serrated, thus providing a most powerful grip.

The loose jaw swivels, which allows tapers or irregular work to be held with equal tightness at both ends.

The clamping screw is turned from the solid steel, cut with a square thread and case-hardened, and is operated by a tommy bar in vices up to 5 inches. In the 6 and 8-inch vices the screw is operated by a steel hexagon box wrench.

Width of Jaw	ins.	3	3	4	4	5	5	6	6	8	8
Depth of Jaw	,,	1¼	1¼	1½	1⅔	2	2	2¼	2¼	2½	2½
Opens	,,	4½	7½	5	7½	9½	12½	12½	16	16	20
Length over all	,,	10½	14	13¾	16¼	19¼	22¼	22½	26	28	32
Width over all	,,	7	7	8½	8½	9½	9½	11	11	13	13
No. of Slots in Base ...	,,	2	4	2	4	4	4	4	6	6	6
Size of Slots in Base ...	,,	⅝	⅝	⅝	⅝	⅝	⅝	¾	¾	⅞	⅞
Approx. Weight, in lbs. ...	,,	23	25	37	43	67	75	96	110	160	173
Price, Retiring Jaws, Each		**47/-**	**54/-**	**64/-**	**67/-**	**92/-**	**97/-**	**107/-**	**117/-**	**165/-**	**175/-**

When ordering, state width of jaws, and opening.

"XL" Retiring Jaw Machine Vices (British Made)

Deep Jaw, Extra Heavy Type

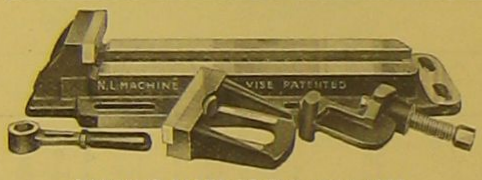
These Vices are similar in design to those above, but are more massive, heavier, and with deep jaws.

Width of Jaw	Depth of Jaw.	Opens	Length overall	Width overall	Approx. Weight	Price each
5 ins.	3 ins.	7 ins.	18½ ins.	9½ ins.	77 lbs.	£5 4 0
8 ,,	4 ,,	12 ,,	25 ,,	13 ,,	182 ,,	9 4 0

"XL" Swivel Base Machine Vices (British Made)

These Vices are similar in appearance to those shown above, but **the Vice swivels to a complete circle,** and the base is graduated.

Width of Jaw ...	ins.	6	8
Depth of Jaw ...	,,	2¼	2½
Opens	,,	12	16
Weight	lbs.	115	242
Price each		**£7 4 0**	**£13 0 0**



SHOWING PARTS OF THE "NL" VICE.

"NL" VICE ASSEMBLED AND READY FOR USE

"NL" No Lift Machine Vices

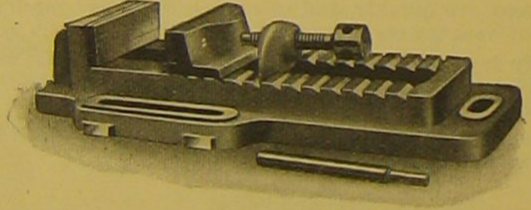
(British Made)

These Vices are simple, effective and reliable and hold fast either parallel or taper work. They are light in proportion to strength.

They do not "lift" when tightened, are quickly adjusted and easily handled.

When worn accuracy can be restored by machining the upper face.

Width of Jaws ins.	3	4	5	6	7	8	10	12
Opening ... ... ,,	7	9	11½	14	18	20	24	30
Depth of Jaws ... ,,	1⅛	1¼	1½	2	2	2¼	2¼	2½
Weight ... ... lbs.	24	32	48	72	106	144	227	350
Price ... each	**48/-**	**58/-**	**80/-**	**100/-**	**125/-**	**150/-**	**200/-**	**283/-**



"Union" Machine Vices (British Made)

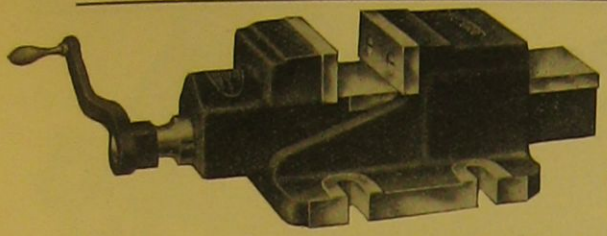
Made of good quality cast-iron and with jaw fitted with serrated steel plates which, when gripping work, automatically draw it down firmly to the surface of the vice.

The loose jaw swivels to allow irregular or taper work to be held.

Larger sizes can also be supplied.

Width of Jaws ... ... ins.	3	3	4	4	4	5	5	5
Depth of Jaws ... ... ,,	1¼	1¼	1½	1½	1½	1½	1½	1½
Admits between Jaws ... ,,	4	7	6	8	10	6	9	12
Price each	**£1 12 6**	**£1 15 0**	**£2 5 0**	**£2 7 6**	**£2 10 0**	**£2 17 6**	**£3 0 0**	**£3 2 6**
Width of Jaws ... ... ins.	6	6	6	8	8	8	8	
Depth of Jaws ... ... ,,	1¾	1¾	1¾	2	2	2	2	
Admits between Jaws ... ,,	9	12	16	10	16	20	24	
Price each	**£3 15 0**	**£3 17 6**	**£4 0 0**	**£5 10 0**	**£5 15 0**	**£6 0 0**	**£6 5 0**	

MACHINE VICES AND CRAMPS



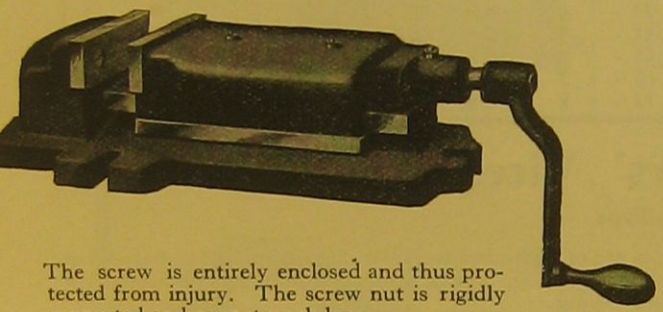
Record Machine Vices (British Made)

These are compact, sturdy, and rigid tools of improved design; are equally serviceable on drilling, milling, or shaping machines.
Grip is perfectly parallel, and the front jaw sliding through the body prevents work from lifting when being gripped.
Screw is entirely enclosed and sides of the base are machined at right angles to the jaws.
Jaw plates are of steel, hardened, and interchangeable.

Dimensions and Prices

No.	Price	Width of Jaws	Depth of Jaws	Opening	Size of Base	Approx. Weight
	Each	Ins.	Ins.	Ins.	Ins.	Lbs.
*242	17/-	2	$\frac{3}{4}$	2	4 × $3\frac{3}{4}$	5
*243	24/-	3	$1\frac{1}{8}$	$2\frac{1}{2}$	$5\frac{1}{2}$ × 5	13
244	45/-	4	$1\frac{3}{8}$	$3\frac{1}{4}$	$7\frac{1}{4}$ × $6\frac{3}{4}$	28
245	85/-	5	$1\frac{5}{8}$	4	$8\frac{3}{4}$ × $8\frac{1}{4}$	45
246	110/-	6	2	$5\frac{1}{8}$	$10\frac{1}{4}$ × $9\frac{1}{2}$	70

*Nos. 242 and 243 are fitted with drop Handle in place of handle shown in illustration.

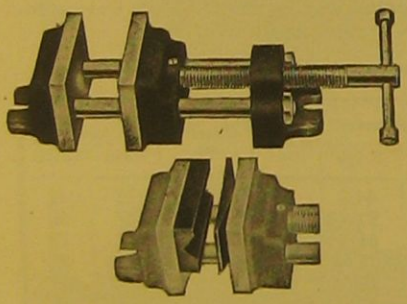


I.X.L. Machine Vices, Type A

(British Made)

The screw is entirely enclosed and thus protected from injury. The screw nut is rigidly supported and cannot work loose.
Jaws are of special alloy steel carefully hardened.
An aperture runs the length of the vice body and allows clamping of small parts which are longer than depth of jaws.

Size ... ... No.	1	2	3	4	5	6
Width of jaws approx. ins.	$3\frac{1}{8}$	4	$4\frac{3}{4}$	6	7	$8\frac{1}{4}$
Depth of jaws ,, ,,	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{9}{16}$	2	$2\frac{3}{8}$	$2\frac{3}{4}$
Max. opening of jaws ,, ,,	$2\frac{3}{8}$	$3\frac{1}{8}$	4	$5\frac{1}{8}$	$6\frac{1}{4}$	8
Distance side slots, centre to centre approx. ins.	$4\frac{5}{8}$	$5\frac{3}{4}$	$6\frac{5}{8}$	$7\frac{3}{4}$	$9\frac{1}{4}$	$10\frac{7}{8}$
,, end slots ,, ,, ,,	$9\frac{3}{4}$	$11\frac{1}{8}$	14	$16\frac{3}{4}$	20	$23\frac{1}{4}$
Width of slots ,, ,,	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{7}{8}$
Net weight ... approx. lbs.	12	20	38	62	100	145
Price ... ... **each**	**On Application**					



"Rededa" Machine Vice No. 61 (British Made)

Particularly suitable for use on drilling machines in machine shops and garages.
Heavy Steel guide rods carrying the jaws ensure accurate alignment and allow plenty of clearance for drill breaking through.
Jaws are of high tensile grey iron. The clamping screw and handle are solid steel and convenient holding down lugs are provided on the base.
"Vee" and Swivel Jaws can be fitted if required.
Size of jaws, 3 ins. wide × 2 ins. deep. Jaws open up to 3 ins. Weight, 5 lbs.
Price, Vice No. 61, **7/6 each**: **Extra** for Vee Block Jaw, **1/6 each**: **Extra** for Swivel Jaw, **1/- each.**

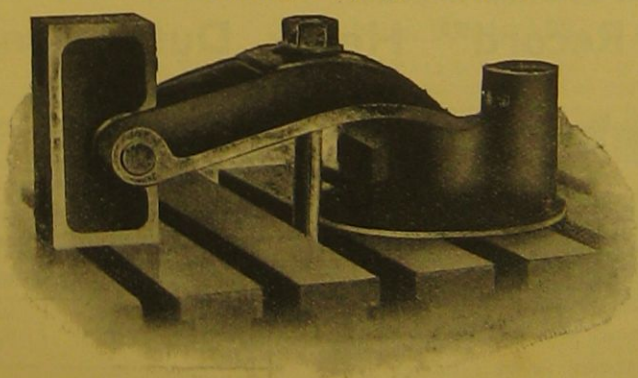
Armstrong Planer Jacks

(Made in U.S.A.)

Nos.	1	2	3	4
Height, ins.—	$2\frac{1}{4}$–$3\frac{1}{4}$	$3\frac{3}{4}$–$5\frac{1}{4}$	$5\frac{1}{4}$–$7\frac{1}{2}$	$7\frac{1}{2}$–12
Weight, lbs.—	$1\frac{1}{2}$	3	6	12
Price, each—	8/-	12/6	18/9	36/-

The Combination Cramp (British Made)

For use on Planing, Shaping Machines, etc.



This Cramp consists of a strong steel arm, hardened on the wearing surfaces, and pivoted out of centre on a cast-iron block.
A different gripping height for each of the four sides of block can thus be obtained by turning block round.
As an End Cramp, when machining upper surfaces it holds the work firmly to surface of table.

Nos. ...	3	4	
Takes Bolts	$\frac{7}{8}$	1	inch.
Weight	11	14	lbs.
Prices, without Bolts ...	18/3	28/-	each

BENCH VICES

"Record" Mechanics' Bench Vices (British Made)

Plain Screw Type

These Vices are well-proportioned and exceptionally strong tools, and are very popular on account of their wide range of sizes and moderate costs.
The strengthening web on the front of the body eliminates the weakness of former types.
The Nut, in sizes Nos. 4 to 8, is detachable, and in the other sizes is solid with the body.
These Vices have continuous screw action.

"RECORD" MECHANICS' BENCH VICE

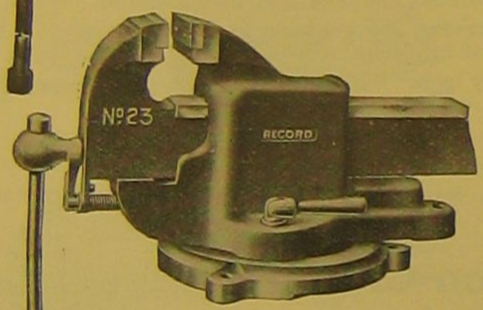
Dimensions and Prices

Fixed Base No.	Fixed Base Price	Width of Jaws Ins.	Swivel Base No.	Swivel Base Price	Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs. Fixed	Approx. Weight Lbs. Swivel
00	10/6	2¼	00 S	16/-	1⅛	2¼	5½	8
0	12/-	2½	0 S	18/-	1⅜	2½	7½	10
1	14/6	3	1 S	21/6	1⅞	3¼	12	14
2	19/6	3½	2 S	29/-	2⅜	4	21	25
3	25/-	4	3 S	38/6	2¾	4¾	33	38
4	33/-	4½	4 S	48/-	3	5½	42	48
5	41/-	5	5 S	60/-	3¼	6½	56	66
6	55/-	6	6 S	75/-	3½	8	72	88
7	65/-	7	7 S	85/-	4	9¼	84	100
8	72/-	8	8 S	92/-	4	9¼	90	110

"Record" Fitters' Vices (British Made)

Quick Grip Type

Nos. 21 to 28. WITH FIXED BASE



Nos. 21S to 27S. WITH SWIVEL BASE

These Vices are of high-class workmanship and finish, and are fitted with quick grip action, which eliminates unnecessary turning in opening and closing.

The bodies are of best quality cast iron, and the jaw plates of special cut and hardened steel.

The screw and handle are of mild steel, other parts being steel and malleable iron.

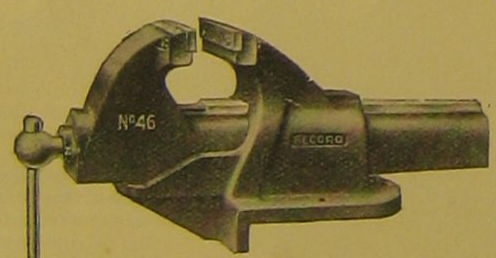
Each Vice is thoroughly tested and inspected before leaving the works.

Dimensions and Prices

Fixed Base No.	Fixed Base Price	Width of Jaws Ins.	Swivel Base No.	Swivel Base Price	Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs. Fixed	Approx. Weight Lbs. Swivel
21	34/-	3¼	21 S	44/-	2⅜	4	32	42
22	41/-	3¾	22 S	52/-	3⅛	5	47	60
23	49/-	4¼	23 S	61/-	3⅜	6	62	75
24	60/-	5¼	24 S	75/-	3⅞	7	77	95
25	71/-	6	25 S	88/-	4½	8	95	112
27	90/-	7	27 S	110/-	5	9	112	135
28	135/-	8	—	—	5⅞	10	180	—

"Record" Heavy Duty Iron Vices (British Made)

Plain Screw Type



"RECORD" HEAVY-DUTY VICE

The special feature of these Vices is their great strength of construction for shock resistance. They are especially designed for rough and heavy work in foundries, dockyards, for chippers, and in any workshop where vices are called upon for heavy work.

The nut is detachable and can be renewed.

The jaw plates are interchangeable and renewable.

Dimensions and Prices

No.	Price	Width of Jaws Ins.	Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs.
46	120/-	6	4½	10	125
48	260/-	8	5½	12	240
49	300/-	10	5½	12	250

BENCH VICES

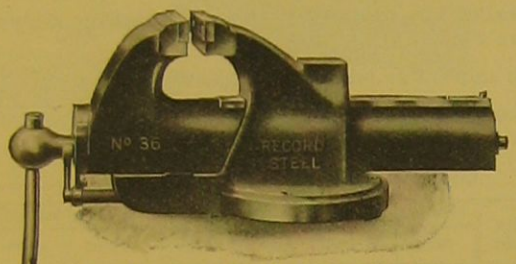
Nos. 110-112—HEAVY-DUTY QUICK-OPENING VICES

"Record" Heavy-Duty Steel Vices (British Made)

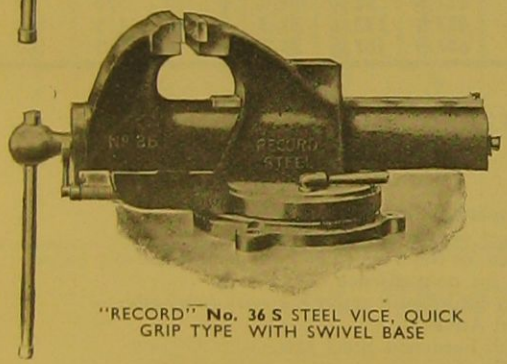
Nos. 110 to 114

Made of steel throughout and guaranteed unbreakable. **Fitted with quick-opening device, or plain screw.**

Plain Screw		Width of Jaws Ins.	Quick Grip		Opening Ins.	Depth of Jaws Ins.	Weight Lbs.
No.	Price		No.	Price			
110 P	78/6	4½	110	80/0	5	3	45
111 P	93/6	5¼	111	96/0	6	3½	52
112 P	112/6	6	112	115/0	7	3¾	70
113 P	139/6	7	113	142/0	8	4	80
114 P	173/6	8	114	176/0	9	4½	95



"RECORD" **No. 36** STEEL VICE, QUICK GRIP TYPE WITH FIXED BASE



"RECORD" **No. 36 S** STEEL VICE, QUICK GRIP TYPE WITH SWIVEL BASE

"Record" Steel Vices (British Made)

Quick Grip Type

These Vices are designed to meet modern workshop conditions, and embody all the advantages and best features that make for strength and utility.

The strength of these vices is guaranteed to meet any ordinary workshop demands, and the body and slide are unbreakable under general working conditions.

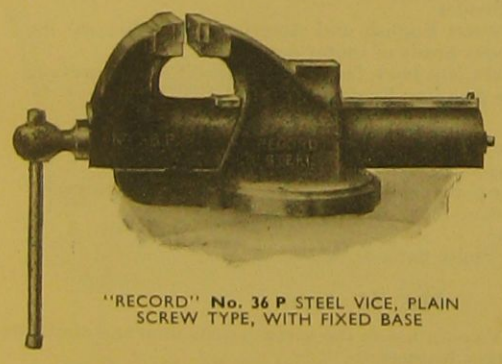
The improved design of the slide provides maximum clearance under the jaws.

The jaws slope at a suitable angle making the vices very convenient for filers and fitters.

Jaw plates are secured by fine thread screws to ensure rigidity and are interchangeable and renewable.

Dimensions and Prices

Fixed Base		Width of Jaws Ins.	Swivel Base		Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs.	
No.	Price		No.	Price			Fixed	Swivel
34	72/-	4½	34 S	86/-	3	5	35	42
35	88/-	5¼	35 S	104/-	3½	6	48	58
36	108/-	6	36 S	128/-	4	7¼	65	77



"RECORD" **No. 36 P** STEEL VICE, PLAIN SCREW TYPE, WITH FIXED BASE

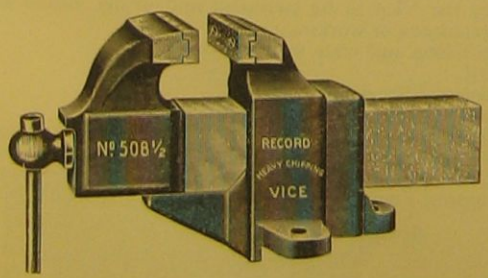
"Record" Steel Vices (British Made)

Plain Screw Type

These Vices are similar in design and workmanship to the Quick Grip Type shown above, **but have continuous screw action.**

Dimensions and Prices

Fixed Base		Width of Jaws Ins.	Swivel Base		Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs.	
No.	Price		No.	Price			Fixed	Swivel
34 P	70/6	4½	34 PS	84/6	3	5	35	42
35 P	85/6	5¼	35 PS	101/6	3½	6	48	58
36 P	105/6	6	36 PS	125/6	4	7¼	65	77



"Record" Heavy Chipping Vices (British Made)

Nos. 506 to 508½

These Vices are designed for rough and heavy duty in machine shops, foundries, erecting shops, and for pneumatic chipping, etc.

The body and sliding jaw are of cast iron of guaranteed strength.

Steel jaw plates are extra deep, giving large gripping surface, and are "tenoned" on to the vice, thus being very rigid.

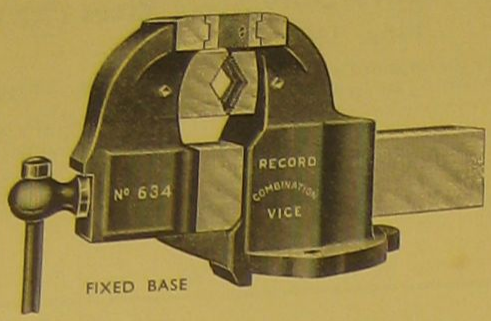
The nut is detachable.

Nos. 516 to 518½

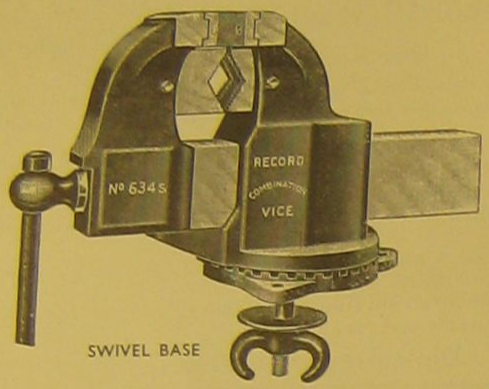
Are similar to the Chipping Vices described above, except the **body and sliding jaw, which are unbreakable tough steel castings.**

Dimensions and Prices

Cast-iron Vices		Width of Jaws Ins.	Steel Vices		Depth of Jaws Ins.	Opening Ins.	Approx. Weight Lbs.
No.	Price		No.	Price			
506	162/6	6	516	215/-	4⅛	10	120
507	230/-	7	517	295/-	4¾	12	190
508½	342/-	8⅛	518½	430/-	5⅝	12	275



FIXED BASE



SWIVEL BASE

"Record" Combination Vices (British Made)

With Fixed or Swivel Base

These Vices whilst covering usual vice requirements have the additional advantage of gripping pipes; and can also be supplied with fixed or swivel base.

The body, sliding jaw, and base-plate are of cast iron.

Pipe jaws are of hardened tool steel, and can be readily detached to admit deep work. The front pipe jaw is reversible and has teeth at both ends.

The ordinary parallel jaw plates are of steel with large gripping surface, and are very rigid.

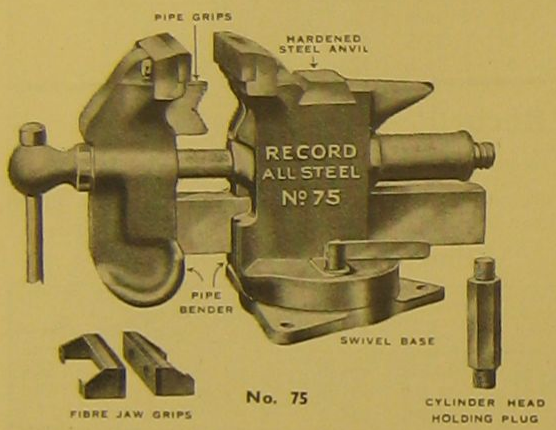
Nut is detachable and can be renewed when necessary.

Swivel Base Locking Arrangement is simple and effective; the vice being locked in any position by a wing nut.

Dimensions and Prices

Fixed Base		Width of Jaws	Swivel Base		Extra Pipe Jaws	Grips Pipe	Approx. Weight	
No.	Price		No.	Price			Fixed	Swivel
	Each	Ins.		Each	Set of 3	Ins.	Lbs.	Lbs.
631	63/6	3½	631 S	66/6	10/-	⅛ to 2½	40	45
632	87/-	4¼	632 S	92/-	14/3	⅛ ,, 3½	70	72
633	127/-	5	633 S	133/6	23/3	⅛ ,, 4½	115	120
634	180/-	6	634 S	187/6	33/3	⅛ ,, 6	170	180

"Record" Auto Vices (British Made)



No. 75

No. 75, All Steel

Unbreakable—for heavy duty.

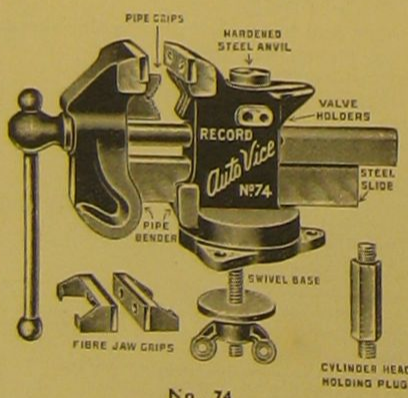
The special features of this Vice are:—

1. Swivel Base enables the Vice to be swivelled and firmly locked at any point for convenience of working.
2. Off-set Jaws to admit long and wide work vertically.
3. Hardened Steel Anvil.
4. Pipe Grips with hardened Steel Jaw.
5. Pipe and Rod Bender.
6. Steel Plug (screwed English and American plug threads) for holding cylinder heads of motor engines.
7. Detachable Steel Clam Jaws, faced with special Fibre to prevent damage when gripping Engine Parts, etc.

Specification.

Width of Jaws, ins.	5¼
Jaws open, extra wide, ins.	7
Will grip pipe, diam., ins.	up to 2¾
Approx. weight, lbs.	48
Price, Complete	**£3 5 0**

Spare parts can be supplied.



No. 74

No. 74, Iron

This is a very handy Vice for use in the garage repair shop and embodies the following interesting features:—

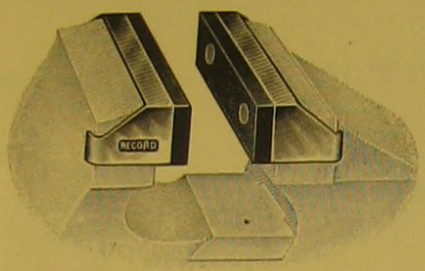
1. Swivel Base enables the Vice to be swivelled and firmly locked at any point for convenience of working.
2. Off-set Jaws to admit long and wide work vertically.
3. Hardened Steel Anvil.
4. Pipe Grips with hardened Steel Jaw.
5. Pipe and Rod Bender.
6. Steel Plug (screwed English and American plug threads) for holding cylinder heads of motor engines.
7. Detachable Steel Clam Jaws, faced with special Fibre to prevent damage when gripping Engine Parts, etc.

Specification.

Width of Jaws, ins.	4
Jaws open, ins.	4½
Will grip pipe, diam., ins.	up to 1½
Approx. weight, lbs.	26
Price, Complete	**£1 9 6**

Spare parts can be supplied.

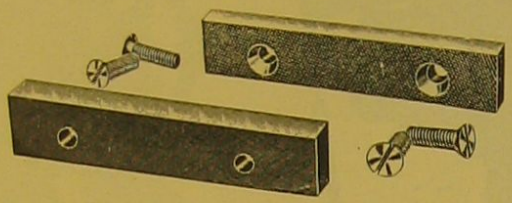
BENCH VICES, FIBRE JAWS & JAW PLATES



"Record" Fibre Jaws for Vices (British Made)

Will fit any make bench vice. The steel lugs bend round the vice jaws and secure the grips in position.
The specially prepared fibre has a cushion face, is very durable, and delicate articles or highly polished surfaces can be gripped firmly without damage.
Fibre faces are renewable.

For Vices with Jaws, ins.	3	3¼	3½	3¾	4	4¼	4½	5	5¼	6
Prices, per pair ...	**2/6**	**2/6**	**3/–**	**3/–**	**3/–**	**3/6**	**3/6**	**4/–**	**4/–**	**4/–**

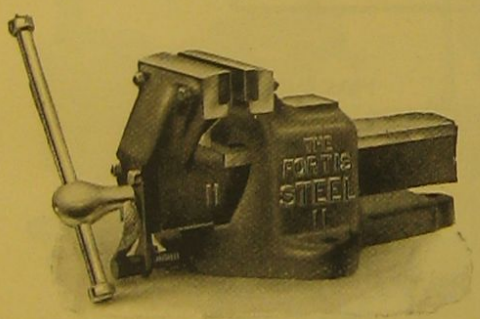


"Record" Vice Jaw Plates (British Made)

These Vice Jaw Plates are of hardened Steel. In ordering **always give Vice numbers** as well as width of Jaw.

To suit Vice No.	Width of Jaws Ins.	Price Per Pair	To suit Vice No.	Width of Jaws Ins.	Price Per Pair	To suit Vice No.	Width of Jaws Ins.	Price Per Pair	To suit Vice No.	Width of Jaws Ins.	Price Per Pair
00	2¼	2/-	23	4¼	5/-	48	8	14/-	508½	8½	46/-
0	2½	2/-	24	5¼	6/-	49	10	17/6	516	6	31/-
1	3	2/6	25	6	7/-	110	4⅛	6/-	517	7	36/-
2	3½	3/-	27	7	8/6	111	5¼	7/-	518½	8½	46/-
3	4	3/9	28	8	14/-	112	6	8/6	631	3½	20/-
4	4½	5/-	34	4⅛	5/-	242	2	3/6	632	4¼	21/-
5	5	6/-	35	5¼	6/-	243	3	6/-	633	5	25/-
6	6	7/-	36	6	7/-	244	4	8/-	634	6	31/-
7	7	8/6	34 P	4½	5/-	245	5	10/-	631 S	3½	20/-
8	8	10/6	35 P	5¼	6/-	246	6	11/6	632 S	4¼	21/-
21	3¼	4/-	36 P	6	7/-	506	6	31/-	633 S	5	25/-
22	3¾	4/6	46	6	7/-	507	7	36/-	634 S	6	31/-

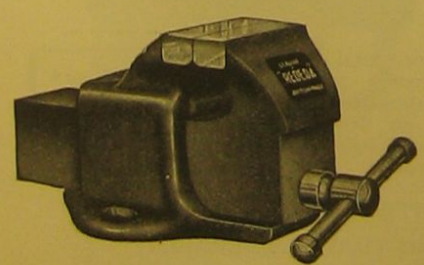
The "Fortis" Steel Vice (British Made)



The body is a jointless steel casting of heavy proportions. The ram is also of steel. **The steel screw and nut** are of the buttress thread type.
Renewable Jaws of large section allow for recutting; they are held in position by hexagon head screws from the outside.
The end stop has a cushioning arrangement.
The nut engaging screw is self-centring and easily renewed.
"**Fortis**" Vices can, if required, be supplied "screw-all-the-way only" at the same price as with quick-opening device.

No.	Width in Jaws Ins.	Depth Ins.	Opens Ins.	Price Each
10	4⅛	3	5	£3 2 6
11	5¼	3½	6	3 15 0
12	6	3¾	7	4 10 0
13	7	4	8	5 5 0
14	8	4½	9	6 2 6
15	9	6	12	12 10 0

Swivel Bases for Nos. 10 to 14 ... **18/- each extra**



"Rededa" All Steel Vices (British Made)

Nos. 251 and 251A

The Vices have solid steel body, sliding jaws, and screw, and under normal working conditions are indestructible.
Designed specially for wireless, small car and motor owners, and general household purposes. Attractively finished in cellulose enamel red.

No.	251	251A
Width of Jaws, ins.	2⅛	3
Opening, ins.	2¼	2¼
Price each	**3/6**	**5/11**

REVOLVING HEAD VICES

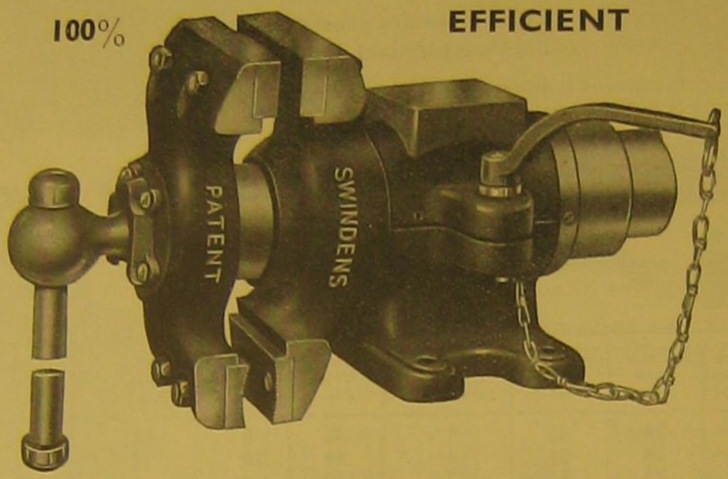
Swindens Patent

A Gripping Investment

100% EFFICIENT

ANVIL TOP. TWO SETS OF JAWS.

(one for pipe and the other for flat work)



SAVES TIME, LABOUR and MONEY.

STANDARD PATTERN WITH ANVIL TOP

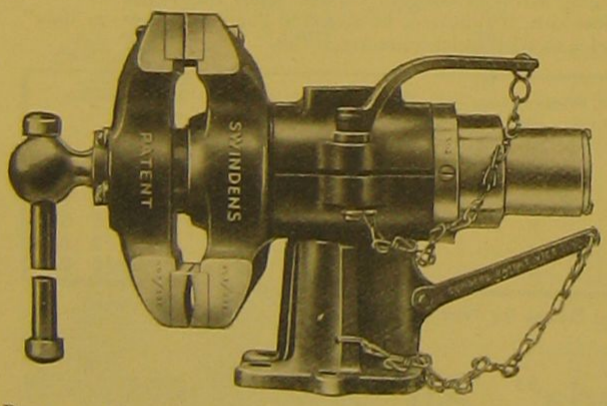
Size	Width of Jaws Flat	Width of Jaws Pipe	Maximum Opening	Depth of Jaw	Weight	Price
2″	2″	1½″	2″	1¾″	8 lbs.	£3 15 0
3″	3″	2¼″	3″	2⅝″	27 ,,	£5 0 0
4″	4″	2⅝″	4″	2⅞″	47 ,,	£5 16 0
5″	5″	4″	5″	2¾″	56 ,,	£6 14 0
6″	6″	5″	6″	3″	72 ,,	£8 0 0
7″	7″	6″	7″	4″	122 ,,	£11 0 0
8″	8″	7″	8″	4 11/16″	150 ,,	£12 8 0

FIBRE JAW LINERS CAN BE SUPPLIED IF REQUIRED

ALL STEEL UNBREAKABLE

BRITISH MADE

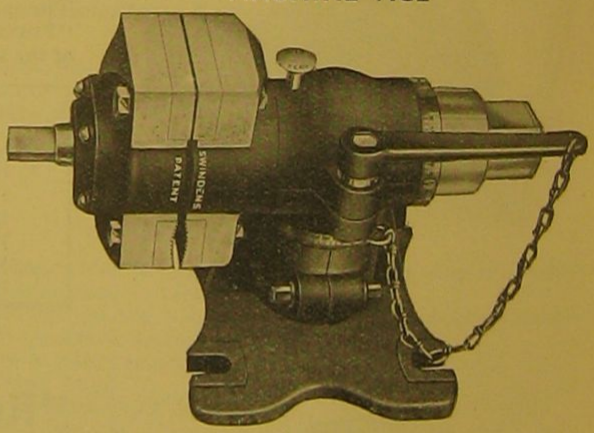
REVOLVING BASE VICE



Possesses all the simplicity, speed and rigidity of the Revolving Head—only one movement for lock and release—withstands chipping and severe shocks.

Size	Weight	Price
3″	36lbs.	£7 0 0
4″	55 ,,	£9 10 0
5″	62 ,,	£10 10 0
6″	87 ,,	£11 10 0

MACHINE VICE



Movement about horizontal and vertical axis—graduated scales zero position stop—obviates expensive jigs—used on drilling, milling and planing machines, repays its cost in a week.

3″ size only. Opening 4″

£10 17 6

Weight ... 36 lbs.

As Supplied to: BRITISH ADMIRALTY, WAR OFFICE, AIR MINISTRY and POST OFFICE, RAILWAY COMPANIES, GAS COMPANIES, and the ENGINEERING TRADE GENERALLY.

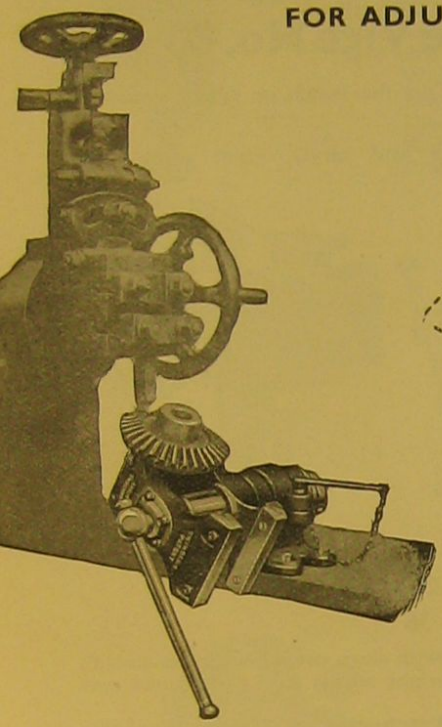
MAKES HARD WORK——————EASY

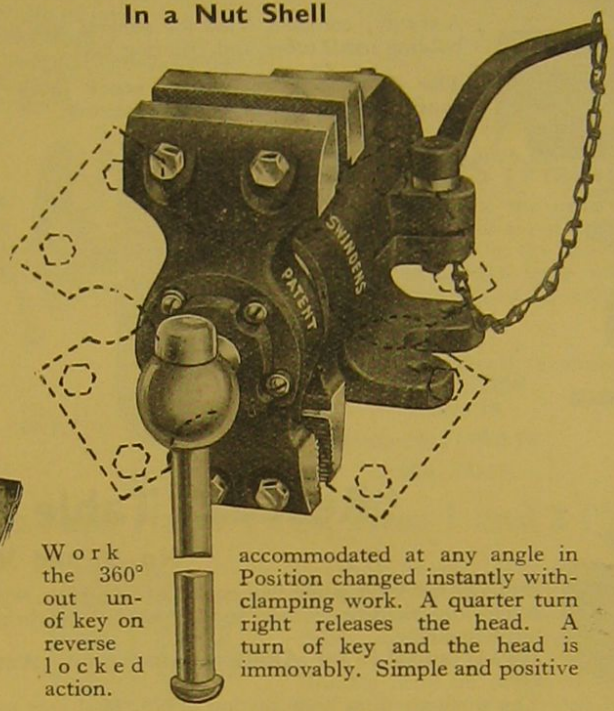
REVOLVING HEAD VICES

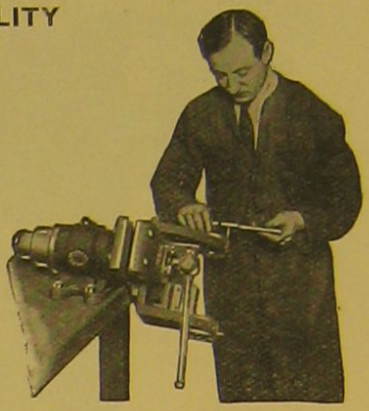
SWINDENS PATENT

FOR ADJUSTABILITY, ADAPTABILITY & DURABILITY

In a Nut Shell



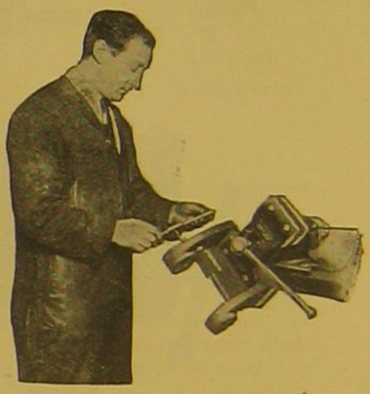


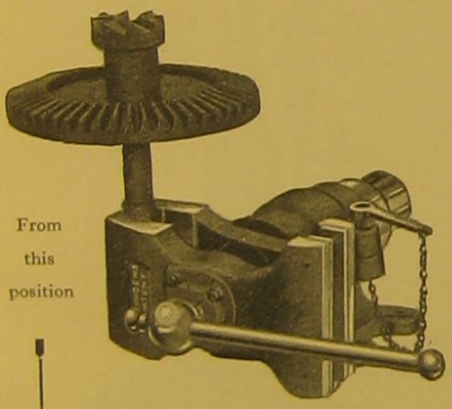


Work the 360° out un- of key on reverse locked action.

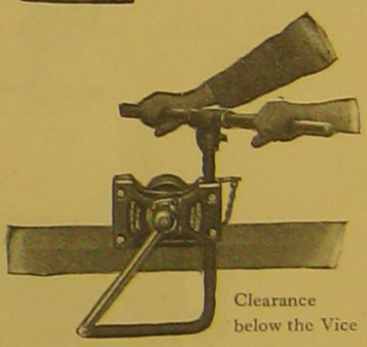
accommodated at any angle in Position changed instantly with- clamping work. A quarter turn right releases the head. A turn of key and the head is immovably. Simple and positive

No Springs or Ratchets.

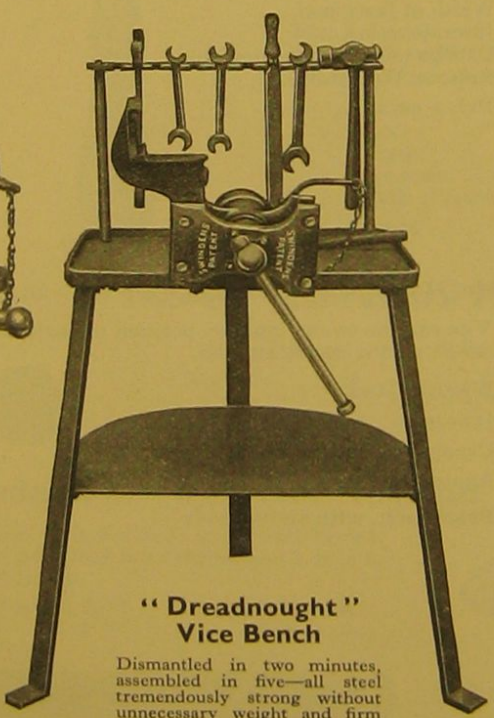


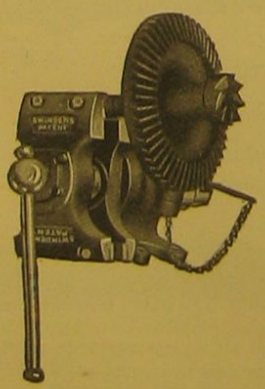


From this position



Clearance below the Vice





To this position— in an instant without unclamping

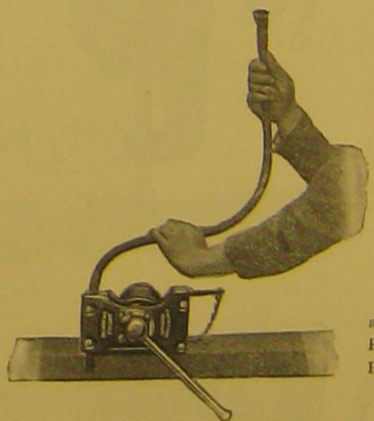
"Dreadnought" Vice Bench

Dismantled in two minutes, assembled in five—all steel tremendously strong without unnecessary weight and firm as a rock.

Table 24" wide by 16" deep inside, height 30" Weight 87 lbs.

Price without vice **£2 15 0**

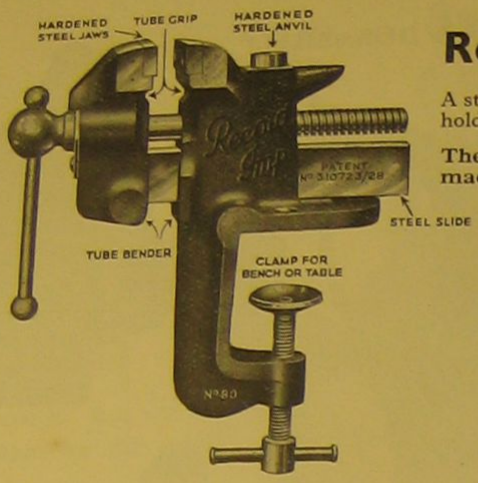
With tool rack **12s.** extra.



and a Positive Pipe Grip

Holds Anything ——— Anyhow

TABLE VICES

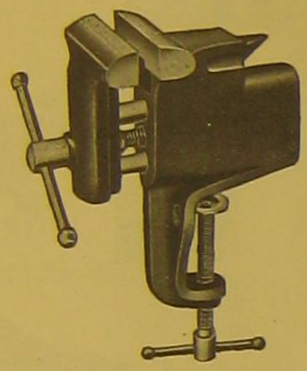


Record "Imp" Table Vice No. 80 (British Made)

A sturdy, compact Vice for general use on the bench or table, capable of holding small tubes and bending rod.

The Vice has hardened steel jaws and anvil, steel slide, and machine-cut square thread screw.

Width of Jaws	2¼ ins.
Jaws open	2½ ,,
Weight	4¼ lbs.
Price	**9/6 each**



"Rededa" Table Vices (British Made)

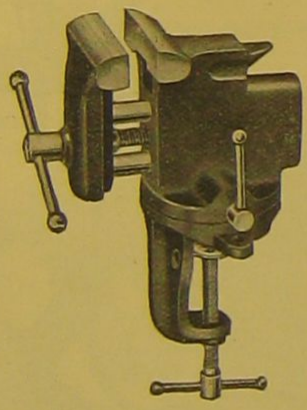
No. 35 and 36

Embody the twin guide-bar construction which, with clean cut screws, gives smooth action and rigidity. Guide-bars and screws of bright tensile steel. Machined jaws meet squarely.

Highly suitable for Amateur Mechanics, Watch-makers, Dental Workers, etc.

The small anvil on body casting of **No. 36** is very useful.

No.	**35**	**36**
Width of Jaws, ins.	1½	2½
Jaws open, ins.	2	2¼
Clamps to bench thickness, ins.	2	2
Approx. Weight, lbs.	2¼	3¾
Price each	**3/6**	**5/–**

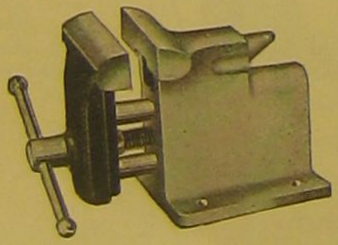


No. 37

The **No. 37** is an indispensible and cheap vice with anvil and **swivel base.**

The Vice may be swung into any position or angle, and locked by means of a lever—this can be seen in the illustration.

Width of Jaws	2½ ins.
Jaws open	2¼ ,,
Clamps to Bench or Table thickness	2 ,,
Approx. weight	4¾ lbs.
Price each, with swivel base	**6/9**

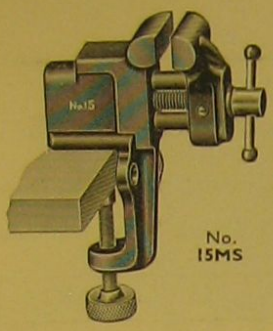


No. 38

The **No. 38** can be screwed permanently to bench or table. The small anvil on body of casting is very useful.

Width of Jaws	2½ ins.
Jaws open	2¼ ,,
Approx. weight	4¼ lbs.
Price each	**4/6**

TABLE, HAND AND PIN VICES

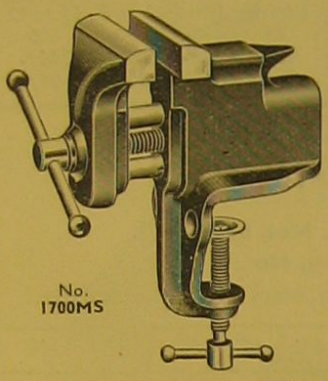


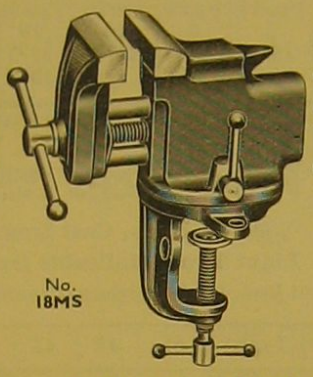
No. 15MS

Mohawk-Shelburne Table Vices (Made in U.S.A.)

No. 15MS. This handy little Vice is constructed with twin steel guide rods, which with the clean cut screw gives rigidity and smooth action. **Jaws are machined** and meet squarely. Body casting fitted with substantial bench clamp is finished in red and black enamel.

Width of Jaws	1½ ins.
Jaws open...	3 ,,
Clamps to bench, thickness	2 ,,
Weight	2⅛ lbs.
Price	**4/2 each.**


No. 1700MS


No. 18MS

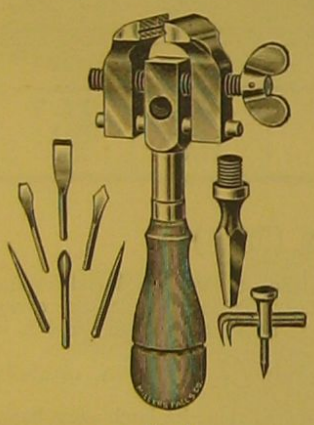
No. 1700MS (Plain) No. 18MS (Swivel)

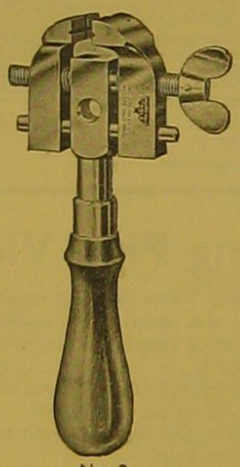
These Vices are of the same sturdy construction as **No. 15** described above, but are of larger capacity and fitted in addition with a small anvil on the body casting.

No. 1700 is a fixed type Vice. No. 18 has a swivel base. This vice can be set to any angle and locked by the lever shown.

Width of Jaws	2⅜ ins.
Jaws open	2¼ ,,
Clamps to bench, thickness	2 ,,
Weight, **No. 1700**	3½ lbs.
No. 18	4¼ lbs.
Price No. 1700MS	**6/– each**
,, **No. 18MS**	**7/10 each**

Millers Falls Hand Vices, Nos. 1 and 2 (Made in U.S.A.)


No. 1


No. 2

Cocobolo handle. Jaws of forged and tempered steel. Screw of steel. Exposed metal surfaces polished and nickeled.

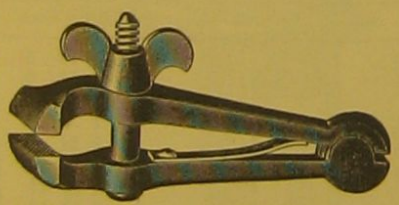
Detachable hollow handle with screw cap, containing chisel, screw driver, countersink, square reamer, brad awl, scratch awl, and washer cutter.

Handle may be screwed into the vice at right angles, and a bit shank is provided which may be screwed into the tool either in the position of the handle as shown in the illustration or at right angles, permitting the vice to be used in a bit brace.

No. 2 has forged steel vice, polished and nickeled, and is **equipped with bit stock shank for use in a bit brace** after removing detachable handle.

Sizes and Prices

Nos.	**1**	**2**	
Length	6¾	7	ins.
Jaws open	1	1	,,
Width of Jaws	1¼	1¼	,,
Prices	**22/10**	**20/9**	**each**



COMET Lancashire Pattern Hand Vices (Foreign)

Drop Forged Steel. Polished Head. Oil Black Finish.

Sizes ...	3½	4	4½	5	5½	6	inches
Prices ...	**2/9**	**3/–**	**3/3**	**3/6**	**4/-**	**4/9**	**each**

Goodell Pin Vices, Nos. 104 and 106 (Made in U.S.A.)

The Chuck is three-jawed, well finished, and nickel-plated. **The handle is made of polished hardwood,** and a hole is drilled through the entire length.

Price, No. 104, Capacity 0 to 5/32 in. ... **4/6 each**
,, **No. 106,** ,, 0 to ¼ in. ... **5/6** ,,

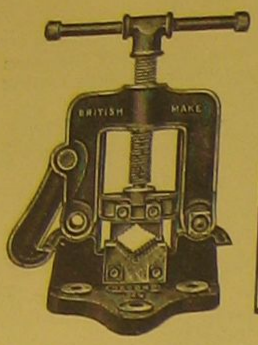
Starrett Pin Vices, No. 162

(Made in U.S.A.)

These Vices have hardened jaws with chucks so made that they will hold firmly anything inserted in them. **The hole extends through full length of the handle.**

The handle is reduced in size, so that it may be more rapidly rotated between thumb and finger when filing small work. They are convenient handles for holding scribers, small files, etc. Nickel-plated.

Nos.	**162 A**	**162 B**	**162 C**	**162 D**	
Capacity	·0 to ·040	·030 to ·062	·050 to ·125	·115 to ·187	in.
Prices	**3/9**	**3/9**	**3/9**	**4/6**	**each**
Set Complete (one of each size)				**15/6**	



"Record" Self-Locking Hinged Pipe Vices
(British Made)

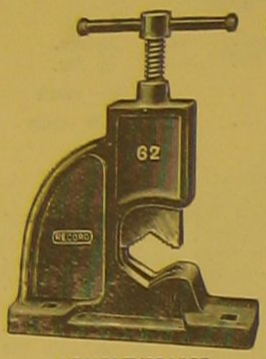
Of malleable iron with steel screw. All parts are interchangeable. **Jaws are machined from tool steel, hardened and tempered.** **The frame is reversible** and the vice can be operated either right or left hand. Three bolt holes are provided for fixing to bench. Replace parts can be supplied when required.

No.	*91	91½	92	92½	93½	94½	96	98	912
Capacity for Pipe ... ins.	⅛ to 1	⅛ to 1½	⅛ to 2	⅛ to 2½	⅛ to 3½	⅛ to 4½	⅛ to 6	1 to 8	1½ to 12
Approx. weight ... lbs.	4	5	8	10	18	25	40	90	200
Price ... ... each	12/6	15/-	17/9	20/9	31/3	45/9	98/-	200/-	360/-
Extra Jaws, Set of 3 ...	5/-	6/3	7/6	7/6	10/6	15/-	25/-	35/6	56/3

*No 91 is recommended for electrical conduits and light service only

"Record" Pipe Vices (British Made)

Heavy Type, Cast Iron, Nos. 61 to 69.
Light Type, Malleable Iron, Nos. 31 to 32.
Tool steel jaw, with hardened teeth, steel screw and handle.



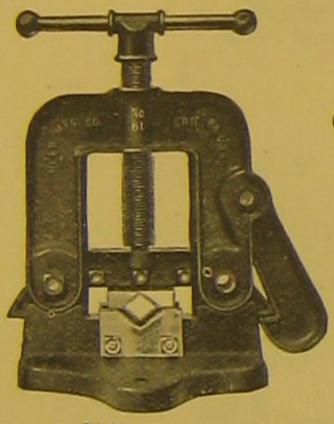
HEAVY TYPE VICE
Nos. 61 to 69

LIGHT TYPE VICE
No. 31 to 32

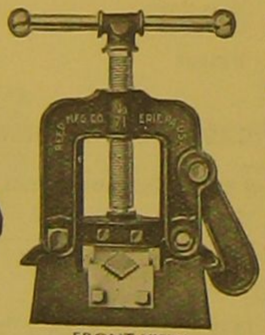
No. (Heavy Type)	61	62	63	64	65	66	68	69
Capacity ... ins.	⅛ to 1¼	¼ to 2	¼ to 3	¼ to 4	1 to 5	1 to 6	2 to 8	3 to 10
Approx. weight lbs.	14	30	45	78	90	130	190	230
Price ... each	17/6	25/-	34/-	48/-	62/-	100/-	184/-	240/-

No. (Light Type)	31	31½	32
Capacity ... ... ins.	⅛ to 1	⅛ to 1½	¼ to 2
Approx. weight ... lbs.	5	10	13
Price ... ... each	13/-	17/6	22/-

Reed Self-Locking Pipe Vices (Made In U.S.A.)



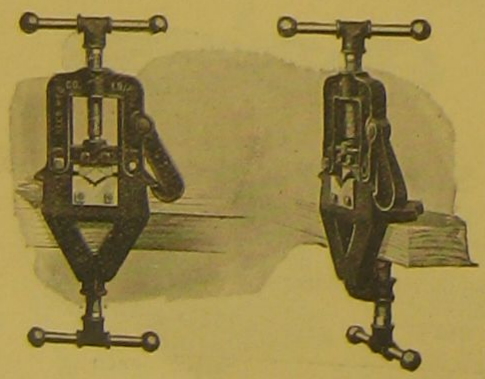
BACK VIEW



FRONT VIEW

In these Vices the best malleable iron has been employed for the frame, the metal being most carefully distributed to ensure every part being amply strong enough to take the strain to which it is subjected.
The jaws are milled from high-grade tool steel bars, carefully hardened in oil, and tested.
The base has lugs on both uprights, so that the latch may hang on either side.

No.	Capacity for Pipe. Ins.	Weight. Lbs.	Price Each
7000	⅛ to 1¼	3	£0 10 5
700	⅛ ,, 1½	5	0 15 0
70	⅛ ,, 2	7½	0 17 9
71	⅛ ,, 2½	10	1 0 10
72	⅛ ,, 3½	16	1 11 3
73	⅛ ,, 4½	25	2 5 10
64	⅛ ,, 6	49	4 17 11
65	1 ,, 8	81	9 17 11
66	1½ ,, 12	163	14 11 8

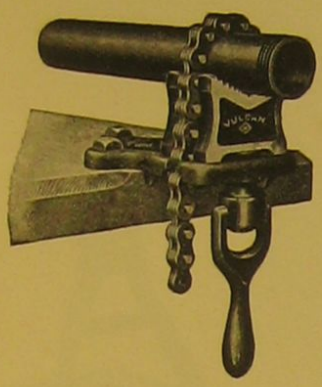


Reed Self-Locking Clamp Kit Vices (Made In U.S.A.)

This Vice is similar in design to the Standard Pattern Reed Pipe Vices listed above, but has the additional convenience of **a clamping device on the base,** which enables the vice to be quickly affixed right on the spot where the work is to be done.

No.	Capacity for Pipe. Ins.	Weight. Lbs.	Price. Each	Extra Jaws Set of 3
9000	⅛ to 1¼	4½	£0 14 7	£0 5 0
900	⅛ ,, 1½	7½	0 18 9	0 6 3
90	⅛ ,, 2	10	1 0 10	0 7 6
91	⅛ ,, 2½	14	1 7 1	0 7 6

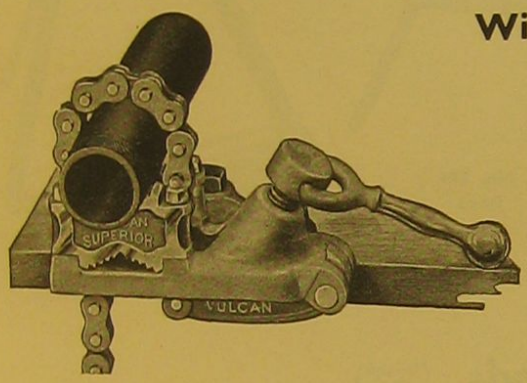
PIPE VICES



Williams' "Vulcan" Chain Pipe Vice (Made in U.S.A.)

These Vices are unbreakable, rapid in action, and positive in gripping pipe. All are equally suitable for fastening to bench or post. The smaller sizes can be carried by hand or in tool-bag.
To adjust, slightly turn screw.
They are made entirely of wrought steel; the drop-forged jaws are of saw-tempered steel for file-sharpening.
The jaws of size No. 1 are designed to prevent the bending of weaker and smaller sizes of pipe, should an excess of chain pressure be placed upon them.

No.	For Pipes	Price Each	Extra Parts. Jaws Pair	Chain and Screw	Handle and Nut	Screw	Nut
1	Sizes ⅛ to 2 ins.	£1 9 2	12/6	10/5	9/2	3/4	5/10
2	,, ¼ ,, 4 ,,	3 2 6	29/2	20/-	17/6	5/10	11/3
3	,, ½ ,, 6 ,,	5 12 6	50/-	37/6	29/2	10/5	16/8
4	,, ½ ,, 8 ,,	7 10 0	75/-	50/-	29/2	10/5	16/8

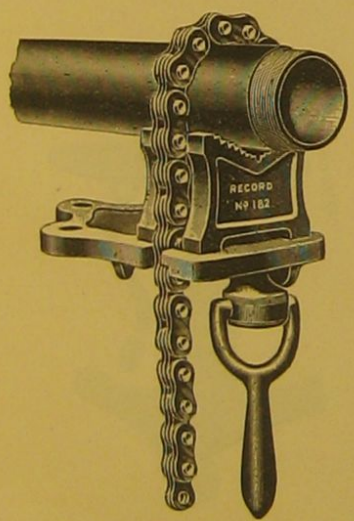


Williams' "Vulcan Superior" Chain Pipe Vices Nos. 11 and 12 (Made in U.S.A.)

In this type, which is of improved design, there is **"overhead" adjustment—the handle is on top,** a convenient position for operation.
Jaws are reversible—simply remove screws to turn the jaw over.
Made from tough wrought steel with drop-forged base, jaws, handle, and chain arm.

No.	For Pipe Sizes. Ins.	Price Each	Jaws Pair	Chains Each	Screws Each	Handle with Screw Each	Chain Arms Each
11	⅛ to 2½	£2 1 8	13/9	8/4	4/2	9/10	5/-
12	¼ to 4½	3 19 2	32/1	15/-	6/1	14/7	7/9

Can be supplied in chrome-plated finish if required.



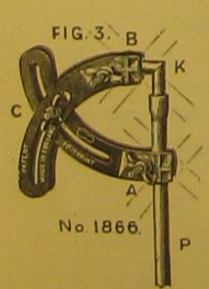
"Record" Chain Pipe Vices

(British Made)

This range of Chain Pipe Vices is suitable for holding pipes, bars, shafts, etc., from ⅛ to 8 inches diameter, and can readily be fixed to a bench or post.
They are made of drop-forged steel with carefully hardened and tempered jaws.
High tensile steel is used for the chains, which will give dependable service.
All parts are interchangeable.

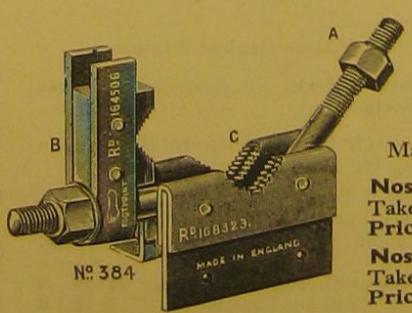
Dimensions and Prices

Nos.	181	182	183	184
Capacity for Pipe ins.	⅛ to 2	¼ to 4	½ to 6	½ to 8
Approx. Weight lbs.	4	10	18	30
Price each, complete	29/-	62/6	112/6	150/-
Extra Chain with Screw	10/6	20/-	37/6	50/-
Extra Jaws, per pair ...	12/6	29/3	50/-	75/-



"Footprint" Pipe Clamp or Soldering Vice (British Made)

No. S1866. Black, for pipes up to ¾ in. outside diam., **3/10 each.**
No. S930. Black, for pipes up to 2 ins. outside diam., **5/- each.**



"Footprint" Portable Tube Vices

Made entirely of wrought iron and steel.

Nos....	S526	S384	S381
Takes tubes, ins.	⅛ to ¾	¼–1½	¼–2
Price, each	4/9	10/-	13/-

Nos.... ...	S385	S693	S931	S1684
Takes tubes, ins.	¼–3	¼–4	½–5½	½–6
Price, each	26/-	34/6	72/6	83/-

"Record" Folding Tripod Stands (British Made)

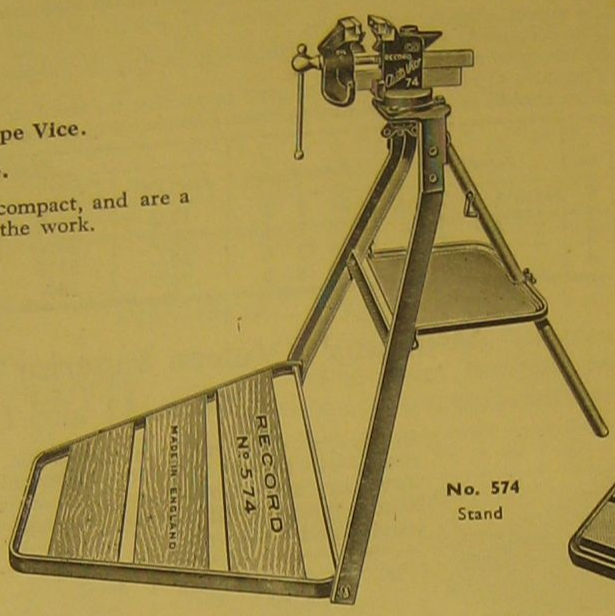
No. 592 Fitted with Hinged Pipe Vice.

No. 574 Fitted with Auto Vice.

These Stands are portable and compact, and are a great convenience for taking to the work.

No. 592. Stand, fitted with a "Record" No. 92 Hinged Pipe Vice, for ⅛ in. to 2 in. pipes. Approx. weight 45 lbs.
Price 54/– each complete.

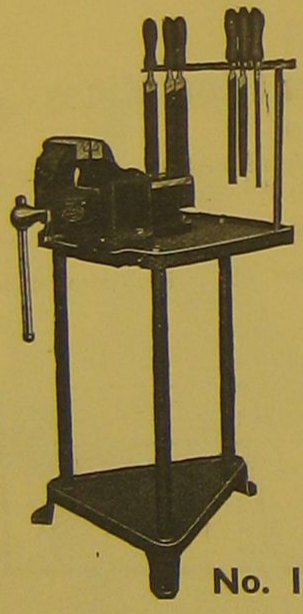
No. 574. Stand, fitted with a "Record" No. 74 Auto Vice, 4 ins. wide jaws, 4½ ins. opening. Pipe jaws take up to 1½ ins outside diam. Approx. weight, 72 lbs.
Price 59/6 each complete.



No. 574 Stand

No. 592 Stand

Portable Vice Stands (British Made)



No. 1

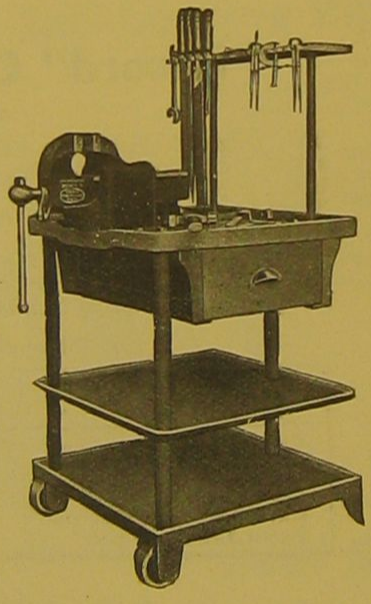
This Stand is intended for use in confined spaces, among machines, lathes, etc.

A rack for holding 8 files and a tray for small articles is fitted.

The base can be used as a shelf.

Top of Table	18×19	ins
Height of Table	30	,,
Weight	98	lbs.

Price, complete with Drawer **£3 2 0**
,, without Drawer **2 5 0**



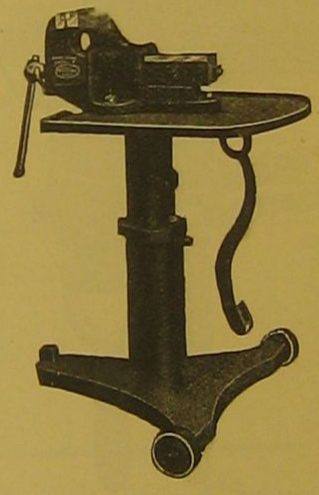
Three-Decker Stands

These Stands are mounted on three wheels.

A rack for holding 10 files and a tray for small articles is fitted.

Top of Table	24×24	ins.
Height of Table	30	,,
Weight	328	lbs.

Price, complete with Drawer **£6 10 0**
without Drawer **5 10 0**



No. 3

Telescopic Stands

The column of these Stands is telescopic, and by means of a small jack-screw the height of table may be varied to suit special requirements of work or workman.

Top of Table	22×22	ins.
Weight	224	lbs.

Price, complete ... **£4 16 0**

Section 2

Cutting Tools and Appliances

Lathe Tools

Twist Drills, H.S.S.
(18 per cent. Tungsten)

Twist Drills, Carbon Steel

Reamers, H.S.S.
(18 per cent. Tungsten)

Reamers, Carbon Steel

Reamers, Expanding

Milling Cutters, H.S.S.

Hack Saw Blades and Frames

Files and Rasps

Breast, Hand and Automatic Drills

Bench and Wall Drilling Machines

Electric Tools, Drills and Grinders

Tables of DECIMAL EQUIVALENTS: DATA relating to TWIST DRILLS and HACK SAW BLADES, Etc., are printed on the end pages of this catalogue.

LATHE TOOLS AND HOLDERS

Williams' "Agrippa" Lathe Tool Holders (Made In U.S.A.)

LATHE TOOL HOLDERS
With Straight Shank

LATHE TOOL HOLDERS
With Right and Left Hand Offset Shanks

"Agrippa" Tool Holders—for cutter economy—are drop-forged from carefully selected tough grade steel, and the method of heat-treatment and hardening gives them great strength and resistance to wear. **Cutters are true and rigidly seated** and their "diamond-point" form requires minimum grinding.

The alloy steel set screws, machined, heat treated and hardened, are unusually tough and strong and give maximum efficiency in cutter fastening.

Each Holder is supplied complete with Wrench and one H.S.S. Cutter Bit.

No. Straight	No. Right Hand	No. Left Hand	Size of Cutters	Size of Holder Straight, Right or Left Hand	Price, either Straight, Right or Left Hand	Extra H.S.S. Cutter Bits
			Inch Square	Inches		Per Dozen
A00S	A00R	A00L	$\frac{3}{16}$	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	£0 11 3	£0 4 2
A0S	A0R	A0L	$\frac{1}{4}$	$\frac{3}{8} \times \frac{7}{8} \times 5$	0 11 11	0 6 0
A1S	A1R	A1L	$\frac{5}{16}$	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	0 13 7	0 7 6
A2S	A2R	A2L	$\frac{3}{8}$	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	0 16 8	0 12 0
A3S	A3R	A3L	$\frac{7}{16}$	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	1 2 6	0 18 0
A4S	A4R	A4L	$\frac{1}{2}$	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	1 8 9	1 4 0
A5S	A5R	A5L	$\frac{5}{8}$	$1 \times 2 \times 11$	2 0 8	2 5 0
A6S	A6R	A6L	$\frac{3}{4}$	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	2 16 3	3 7 6

Williams' "Agrippa" Drop Head Tool Holders (Made In U.S.A.)

DROP HEAD HOLDERS
With Straight Shank

DROP HEAD HOLDERS
With Right and Left Offset Shanks

In these tools the heads are dropped to lower the height of the tool point. They are suitable for shaper and planer work and are specially adapted to use on lathes with clamp tool rests and low centre.

Fitted with Cam-fastening device, either hexagon head or headless cam, which are **interchangeable.** This method of holding the cutter is rapid and positive—the greater the pressure the tighter the lock.

Supplied with Wrench and one H.S.S. Cutter Bit. Hexagon Head Cam is furnished unless otherwise ordered.

No. Straight	No. Right Hand	No. Left Hand	Size of Cutters	Size of Shank Straight R. or L. Hand	Height Base to Point	Price either Straight Right or Left Hand	Extra H.S.S. Cutter Bits	Extra Cams Each
			Inches Sq.	Inches	Inches		Per Dozen	
0200S	0200R	0200L	$\frac{3}{16}$	$\frac{7}{16} \times \frac{9}{16} \times 6$	$\frac{9}{16}$	£0 11 3	£0 4 2	£0 3 9
200S	200R	200L	$\frac{1}{4}$	$\frac{9}{10} \times \frac{11}{16} \times 6\frac{7}{8}$	$\frac{11}{16}$	0 11 11	0 6 0	0 4 2
201S	201R	201L	$\frac{5}{16}$	$\frac{3}{4} \times \frac{7}{8} \times 7\frac{7}{8}$	$\frac{13}{16}$	0 13 7	0 7 6	0 4 7
202S	202R	202L	$\frac{3}{8}$	$\frac{7}{8} \times 1 \times 8\frac{7}{8}$	$\frac{15}{16}$	0 16 8	0 12 0	0 5 1
204S	204R	204L	$\frac{1}{2}$	$1\frac{1}{8} \times 1\frac{1}{4} \times 11$	$1\frac{3}{16}$	1 8 9	1 4 0	0 6 3

Williams'
"Agrippa" Cutting-off and Side Tools (Made in U.S.A.)

WITH
STRAIGHT SHANKS
Nos. 020R to 25R

WITH RIGHT AND LEFT
HAND OFFSET SHANKS
Nos. 030 to 35

In this range of tools blades are interchangeable and one holder takes either Cutting-off or Side blades. They are also supplied with straight or offset shanks.

The Cam-fastening for the blade can be had with either hexagon head or headless cam, it provides a positive lock and permits freedom of operation without removing the holder from the tool-post.

Price includes Wrench and one H.S.S. Blade. Unless otherwise specified cutting-off blade and hexagon head cam will be furnished.

No.			Cutting Blade Size, Ins.		*Size of Holder Inches	Price Complete with		Extra H.S.S. Cutting off Tool Blades	Extra H.S.S. Side Tool Blades
Straight	Right Hand	Left Hand	Cutting-off Tool	Side Tool		Cutting-off Blade	Side Tool Blade		
020R	030R	030L	$\frac{5}{64}\times\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{2}$	$\frac{5}{16}\times\frac{13}{16}\times4\frac{5}{8}$	£0 11 11	£0 11 11	£0 2 6	£0 2 6
20R	30R	30L	$\frac{3}{32}\times\frac{5}{8}$	$\frac{5}{32}\times\frac{5}{8}$	$\frac{3}{8}\times\frac{31}{32}\times5\frac{1}{4}$	0 12 6	0 14 2	0 2 9	0 3 9
21R	31R	31L	$\frac{1}{8}\times\frac{3}{4}$	$\frac{3}{16}\times\frac{3}{4}$	$\frac{1}{2}\times1\frac{3}{16}\times6\frac{1}{4}$	0 15 0	0 18 2	0 3 9	0 5 10
22R	32R	32L	$\frac{1}{8}\times\frac{7}{8}$	$\frac{1}{4}\times\frac{7}{8}$	$\frac{5}{8}\times1\frac{3}{8}\times7\frac{1}{8}$	0 18 9	1 5 0	0 5 5	0 9 7
23R	33R	33L	$\frac{3}{16}\times1$	$\frac{5}{16}\times1$	$\frac{3}{4}\times1\frac{5}{8}\times8\frac{3}{8}$	1 5 0	1 12 9	0 9 0	0 14 2
24R	34R	34L	$\frac{3}{16}\times1\frac{1}{8}$	$\frac{3}{8}\times1\frac{1}{8}$	$\frac{7}{8}\times1\frac{3}{4}\times9\frac{3}{8}$	1 11 3	2 4 5	0 12 1	1 0 10
25R	35R	35L	$\frac{1}{4}\times1\frac{1}{8}$	—	$\frac{7}{8}\times1\frac{3}{4}\times9\frac{3}{8}$	1 15 10	—	0 16 8	—

* Holders with offset Shanks are slightly shorter than lengths shown, which are for Straight Shanks.

Williams'
"Agrippa" Threading Tools (Made in U.S.A.)

With Spring Head

The nut for the lockable spring head provides for the rigid backing required for coarse threading and heavy cuts, when loosened the spring feature operates for finishing work.

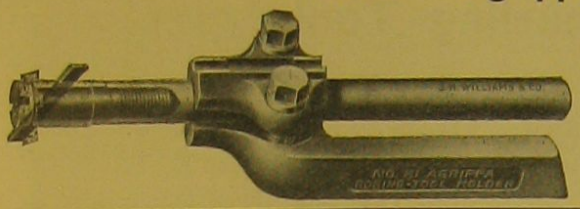
Cam-fastening, as for other Lathe Tools is fitted.

Price includes Wrench and one High Speed Steel Cutter Bit, and hexagon head cam unless otherwise specified.

No.	Cutter Inch Square	Size o fHolder Inches	Price Each Complete	Extra H.S.S. Cutter Bits Per Dozen
50	$\frac{1}{4}$	$\frac{3}{8}\times\frac{7}{8}\times5\frac{1}{2}$	£0 17 4	£0 6 0
51	$\frac{6}{16}$	$\frac{1}{2}\times1\frac{1}{8}\times6\frac{1}{2}$	1 0 10	0 7 6
52	$\frac{1}{2}$	$\frac{5}{8}\times1\frac{3}{8}\times7\frac{1}{2}$	1 6 8	0 12 0

BORING TOOLS, Etc., FOR LATHES

Williams' "Agrippa" Boring Tool Holders (Made in U.S.A.)



In the design of these holders **all unnecessary sleeves, bushings, and parts have been eliminated** and the capacities are such that multiple bars can be used.

Each Set comprises:—Holder, Sleeve or Plain Type Bar, one each H.S.S. Cutter 45° and 90°, and wrench.

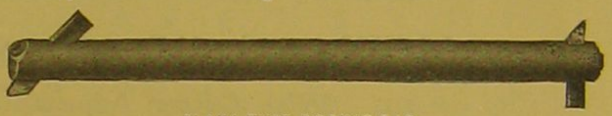
Sleeve Type Bar is sent unless otherwise ordered.

No.	Size of Shank Ins.	Capacity for Bars Ins.	Standard Bar Size	Price Each	
				Plain Type	Sleeve Type
080	$\frac{5}{16}\times\frac{3}{4}$	$\frac{3}{16}$ to $\frac{1}{2}$	$\frac{1}{2}$	£0 17 11	£1 0 5
80	$\frac{3}{8}\times\frac{7}{8}$	$\frac{1}{4}$,, $\frac{5}{8}$	$\frac{5}{8}$	0 17 11	1 0 5
81	$\frac{1}{2}\times 1\frac{1}{8}$	$\frac{1}{4}$,, $\frac{3}{4}$	$\frac{3}{4}$	1 0 10	1 4 2
82	$\frac{5}{8}\times 1\frac{3}{8}$	$\frac{3}{8}$,, $\frac{15}{16}$	$\frac{15}{16}$	1 7 1	1 11 11
83	$\frac{3}{4}\times 1\frac{5}{8}$	$\frac{1}{2}$,, $1\frac{1}{8}$	$1\frac{1}{8}$	2 0 0	2 5 3

Williams' "Agrippa" Boring Bars (Made in U.S.A.)

For Use in Boring Tool Holders and Adjustable Boring Tool Posts

SLEEVE TYPE BORING BAR



PLAIN TYPE BORING BAR

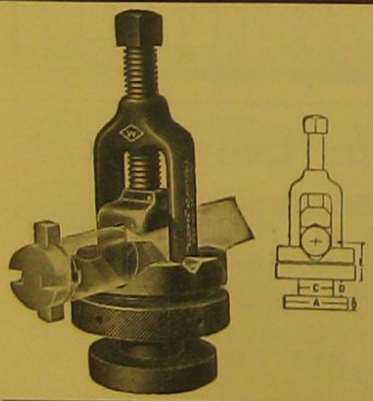
"Agrippa" Boring Bars and Cutters are made in two styles, as illustrated:—

The Sleeve Type Bar, in which the cutter holder is screwed into the end of the bar, holds straight or angular cutters without the use of extra parts, is capable of rapid adjustment.

The Plain Bar Type is arranged for carrying an angular cutter at one end and a straight cutter at the other, both held in place by a headless set screw.

Each Bar is furnished with wrench and two H.S.S. Cutter Bits.

Size Boring Bars, Ins.		For use with		Size of Cutters Ins.	Price Each		Extra H.S.S. Cutters Each	
Plain Type	Sleeve Type	Boring Holders Nos.	Boring Tool Posts No.		Plain Type	Sleeve Type	90°	45°
$\frac{1}{2}\times 8\frac{1}{8}$	$\frac{1}{2}\times 7\frac{5}{8}$	080 to 83	2 to 3	$\frac{3}{16}\times 1$ (90°) $\frac{3}{16}\times 1\frac{1}{2}$ (45°)	£0 10 0	£0 12 6	0/5	0/6
$\frac{5}{8}\times 10\frac{1}{8}$	$\frac{5}{8}\times 9\frac{1}{8}$	80 ,, 83	2 ,, 4	$\frac{1}{16}\times 1$,, $\frac{3}{16}\times 1\frac{1}{2}$,,	0 10 0	0 12 6	0/5	0/6
$\frac{3}{4}\times 12\frac{1}{8}$	$\frac{3}{4}\times 11$	81 ,, 83	2 ,, 5	$\frac{1}{4}\times 1\frac{1}{4}$,, $\frac{1}{4}\times 2$,,	0 12 4	0 15 8	0/8	0/10
$\frac{15}{16}\times 14\frac{1}{8}$	$\frac{15}{16}\times 13\frac{1}{4}$	82 ,, 83	2 ,, 5	$\frac{5}{16}\times 1\frac{1}{2}$,, $\frac{5}{16}\times 2\frac{1}{2}$,,	0 17 9	1 2 6	1/0	1/4
$1\frac{1}{8}\times 16\frac{3}{4}$	$1\frac{1}{8}\times 16$	83	2 ,, 5	$\frac{3}{8}\times 1\frac{7}{8}$,, $\frac{3}{8}\times 3$,,	1 6 1	1 11 3	1/6	2/1
$1\frac{5}{16}\times 20$	$1\frac{5}{16}\times 19$		2 ,, 5	$\frac{3}{8}\times 2\frac{1}{4}$,, $\frac{3}{8}\times 3\frac{1}{4}$,,	1 17 6	2 3 9	1/8	2/4
$1\frac{1}{2}\times 23\frac{1}{2}$	$1\frac{1}{2}\times 23\frac{1}{4}$		3 ,, 5	$\frac{7}{16}\times 2\frac{1}{4}$,, $\frac{7}{16}\times 3\frac{3}{8}$,,	2 9 0	2 16 3	2/6	3/7
$1\frac{13}{16}\times 28$	$1\frac{13}{16}\times 27\frac{1}{4}$		4 ,, 5	$\frac{1}{2}\times 2\frac{5}{8}$,, $\frac{1}{2}\times 4$,,	3 12 11	4 1 3	3/9	5/5
$2\frac{1}{4}\times 34$	$2\frac{1}{4}\times 33$		5	$\frac{5}{8}\times 3\frac{1}{8}$,, $\frac{5}{8}\times 4\frac{3}{4}$,,	6 9 2	7 3 9	7/1	9/10



Williams' "Agrippa" Adjustable Boring Tool Posts

(Made in U.S.A.)

Each post accommodates a wide range of bars and commercial sizes of bar steel are adaptable for either bars or cutters without machining.

The height of the bar is adjusted by a turn of the knurled ring, which raises or lowers the base supporting the bar. By tightening the set screw in the head of the post the whole device can be instantly and rigidly locked.

Price includes either Sleeve or Plain Bar one each 45° and 90° H.S.S. Cutter Bits and wrench. The standard size sleeve bar is sent unless otherwise specified.

No.	2	3	4	5
Height of Post Overall, without Screw ... ins.	$6\frac{5}{8}$	$7\frac{5}{8}$	$9\frac{1}{8}$	$11\frac{1}{8}$
"T" Slot Flanges, Diameter A ... ,,	3	$3\frac{1}{2}$	$4\frac{1}{2}$	5
,, Thickness B ... ,,	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$
"T" Slot Neck, Diameter C ... ,,	$1\frac{5}{8}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
,, Length D ... ,,	$\frac{3}{4}$	$\frac{13}{16}$	1	$1\frac{1}{4}$
,, Centre Height E ... ,,	$1\frac{13}{16}$	$1\frac{7}{8}$	$2\frac{3}{8}$	$2\frac{3}{4}$
Capacity of Post for Bars ... ,,	$\frac{1}{2}$ to $1\frac{5}{16}$	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{5}{8}$ to $1\frac{3}{16}$	$\frac{3}{4}$ to $2\frac{1}{4}$
Size of Standard Bar ... ,,	$1\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{13}{16}$	$2\frac{1}{4}$
Price, Complete with Sleeve Bar and Cutters each	£5 12 6	£7 16 3	£12 10 0	£18 15 0
,, ,, ,, **Plain Bar** ,, ,, ,,	5 6 3	7 9 0	12 1 8	18 0 5

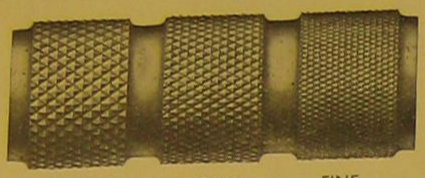
Williams' "Agrippa" Knurling Tools (Made in U.S.A.)

Nos. 00K and OK TOOLS

No. 11K TOOL

Nos. 00K and OK are sturdy, self-centring heads, fitted with one pair of knurls for fine, medium or coarse work. Medium knurls are supplied unless otherwise specified.

No. 11K has three knurls for fine, medium or coarse work. Being fitted in a revolving head either grade knurl can be brought into use as desired without loss of time.



COARSE 14 PITCH | MEDIUM 21 PITCH | FINE 33 PITCH

Illustration shows actual size of Knurling

No.	Standard Knurls Diam. × face Ins.	Size of Holder Ins.	Price Complete Each	Extra Knurls Per Pair
00 K	$\frac{5}{8}\times\frac{3}{16}$	$\frac{5}{16}\times\frac{3}{4}\times 5$	£1 3 7	£0 4 2
0 K	$\frac{5}{8}\times\frac{3}{16}$	$\frac{3}{8}\times\frac{7}{8}\times 5\frac{1}{2}$	1 5 0	0 4 2
11 K	$\frac{3}{4}\times\frac{3}{16}$	$\frac{1}{2}\times 1\frac{1}{8}\times 6\frac{5}{8}$	1 17 6	0 4 10

Williams' "Agrippa" Planer Tools (Made in U.S.A.)

With Cutter Adjustable Almost to Any Position

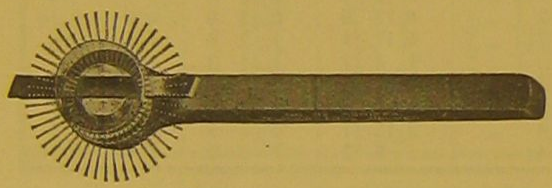
PLANER TOOL HOLDER
Nos. 91 to 97

Bolt Fastening and Serrated Adjustment Ring

By means of the hardened and tempered adjusting ring with its numerous serrations the cutter can be securely locked at almost any angle.

The convex face of the clamp nut permits use of cutters either square or rectangular in form. The tool is rugged and permits excellent service on Planers or Lathes and can also be used as an offset turning tool.

Furnished complete with wrench and one H.S.S. Cutter Bit.



Shows how Cutter is adjustable to any position

No.	Size of Cutter Inches	Size of Holder Inches	Price Complete	Extra H.S.S. Cutter Bits, Each	Extra Adjustment Range Each
91	$\frac{1}{4}\times\frac{3}{8}$	$\frac{1}{2}\times 1\times 7$	£0 19 5	£0 1 6	£0 2 6
92	$\frac{5}{16}\times\frac{7}{16}$	$\frac{5}{8}\times 1\frac{1}{4}\times 8\frac{1}{2}$	1 5 0	0 2 4	0 2 10
93	$\frac{3}{8}\times\frac{1}{2}$	$\frac{3}{4}\times 1\frac{1}{2}\times 10\frac{1}{4}$	1 12 9	0 3 4	0 3 6
94	$\frac{1}{2}\times\frac{3}{4}$	$1\times 1\frac{3}{4}\times 13\frac{1}{4}$	2 11 8	0 8 2	0 4 5
95	$\frac{5}{8}\times\frac{7}{8}$	$1\frac{3}{8}\times 2\times 16\frac{1}{2}$	4 10 8	0 14 0	0 6 3
96	$\frac{3}{4}\times 1$	$1\frac{7}{8}\times 2\frac{3}{8}\times 19$	8 2 6	1 1 0	0 9 5
97	$\frac{7}{8}\times 1\frac{1}{8}$	$2\frac{1}{8}\times 2\frac{3}{4}\times 22$	11 17 6	1 14 3	0 14 1

Armstrong Self-Hardening Steel in 3-ft. Lengths (Made in U.S.A.)

Square Section

Sizes ...	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$ in.
Prices	5/–	8/6	12/6	17/9	23/6	29/9	46/3	66/–	88/9

Planer Steel

Nos.	40	401	41&61	62	42	43 & 63	44	45
Prices	13/–	17/9	24/6	43/3	46/–	65/–	86/–	113/9

Cutting-off Steel

Nos. ...	19 & 20	21	22	23	24	25	26
Prices ...	10/–	14/9	15/9	25/–	27/6	38/6	40/–

Slotter Steel

Nos. ...	91	92	93	94	95
Prices ...	34/–	43/3	50/–	65/–	86/–

High-Speed Steel Cutter Bits (British)

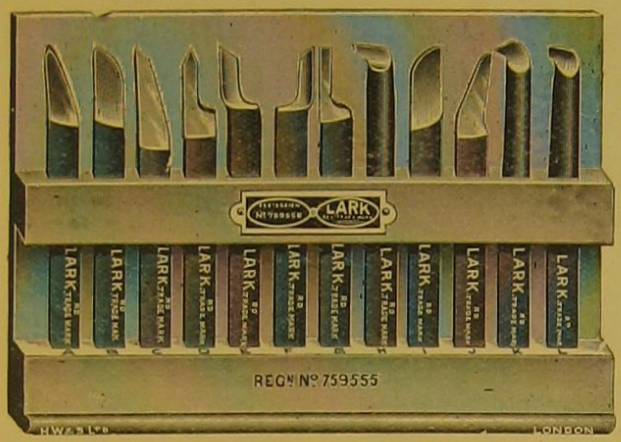
Hardened and Tempered

These Cutter Bits are made from High-Speed Steel, and are suitable for Williams' and other tool holders using cutters of square section. They are hardened and tempered ready for grinding to shape.

Sizes and Prices

Size, ins., square	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length, ins. ...	$1\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{4}$	5	$5\frac{3}{4}$	$6\frac{1}{2}$	$7\frac{1}{4}$
Price, per dozen	4/2	6/–	7/6	12/–	18/–	24/–	45/–	67/6	112/6	172/6

LATHE TOOLS, CENTRES & SCRAPERS



"Lark" Brand Slide Rest Tools

(British Made)

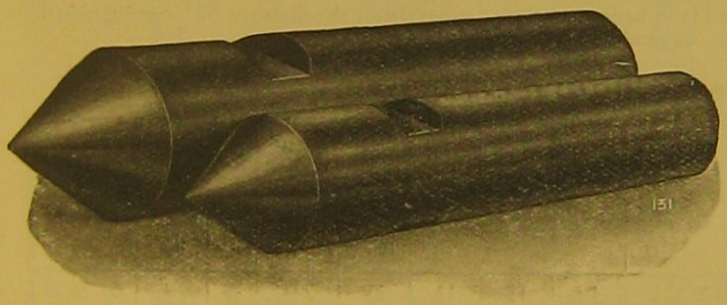
These Sets provide a range of high-grade Slide Rest Tools at a cheap price.
They are supplied complete in Stands only for sizes up to ½ in. and can be had in two qualities, and cover the most useful shapes.
Shapes of Tools supplied:—

A—Roughing Tool for Steel
B—R.H. Finishing Tool
C—R.H. Brass Tool
D—External Screw Cutting Tool
E—R.H. Knife Tool
F—L.H. Knife Tool
G—Parting Tool
H.—Boring Tool
I—L.H. Finishing Tool
J—L.H. Brass Tool
K—Internal Screw Cutting Tool
L—Square Nose Boring Tool

Extra Best Cast Steel									
Sizes, In.	¼	5/16	⅜	7/16	½	9/16	⅝	¾	⅞	1
Sets of 8—A to H ...	3/3	4/6	5/9	7/3	8/9	12/6	16/6	21/9	28/-	33/-
Sets of 12—A to L ...	4/9	6/6	8/6	11/3	13/3	18/6	24/-	32/6	40/9	48/-

High-Speed Steel (18% Tungsten)									
Sizes, In.	¼	5/16	⅜	7/16	½	9/16	⅝	¾	⅞	1
Sets of 8—A to H ...	6/6	8/-	12/-	14/3	20/6	26/9	35/-	53/6	69/6	107/-
Sets of 12—A to L ...	9/9	12/-	18/-	21/3	30/9	40/-	52/6	80/-	105/-	160/-

Hardened and Ground Solid Lathe Centres (British Made)



Carbon Steel Centres

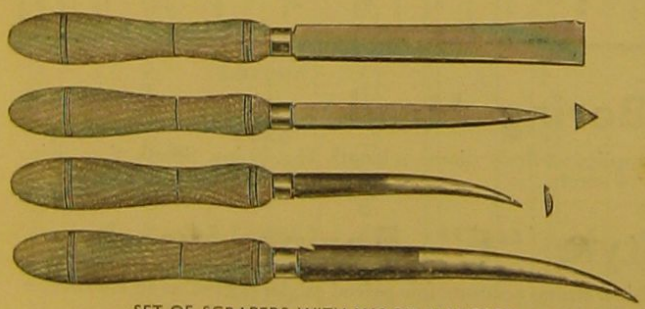
Made from best quality carbon steel, hardened and tempered.
They are ground after hardening.

Morse Taper No.	1	2	3	4	5
Price, each, Round Centres	3/-	4/3	5/9	8/3	16/9 each

High Speed Steel Centres

Sizes and Prices

Morse Taper No.	1	2	3	4	5
Price, each, Round Centres ...	3/9	4/9	7/-	10/-	20/6 each



SET OF SCRAPERS WITH WOOD HANDLES

SHOWING SET OF ALL STEEL SCRAPERS

Engineers' Scrapers

(British Made)

These Scrapers are made from the best hard cast steel, and have finely ground edges.

They can be furnished either all steel or with beech wood handles as illustrated.

Prices

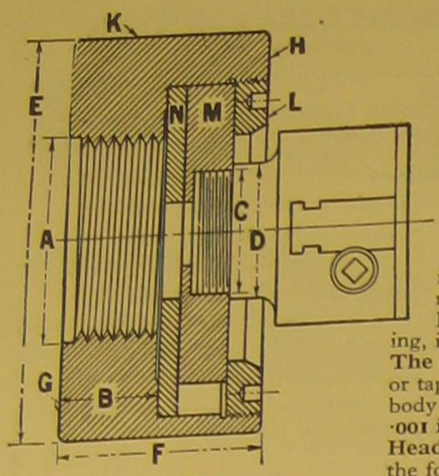
Set of Four Scrapers, with beech handles ... **7/6** per set
,, **Three**, 4-in. Scrapers (Flat, triangular, and half-round), with wood handles **3/6** ,,
,, **Three**, 8-in. Scrapers (Flat, triangular, and half-round), all steel ... ... **5/9** ,,

Flat Scrapers, 1¼ in. wide, with handle ... **2/3** each

Half-round Scrapers without handles can be supplied in the following sizes:—

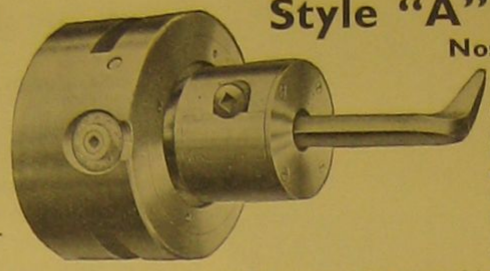
Length, ins.	4	6	8	10	12
Price, per doz. ...	8/-	12/-	16/9	28/-	37/6
Handles, extra, doz.	5/6	5/6	5/6	6/9	6/9

THE CASLER OFFSET BORING HEAD (Made in U.S.A.)



Style "A" Boring Heads

Nos. 30 to 100



The Style "A" Head combines all the essentials of a most complete tool for boring and counter-boring holes to size. **It is rigid, compact, and can be quickly adapted to cover a wide range of work** from the smallest to the largest size holes.

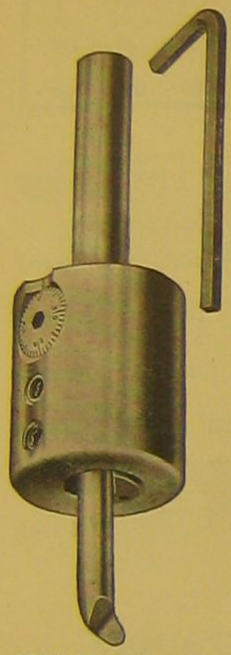
When mounting the Head, it is best to thread it on the nose of the machine tool spindle, this method permitting full value for heavy work and for long hole work being obtained. Mounted in a turret lathe the Head is extremely handy for finish-boring, recessing, inside counter-boring, etc.

The cylindrical body "K" is of cast iron, threaded at "A" to fit the machine spindle or taper shank and carries across its face a threaded offset plate "M" held against the body by means of jib ring "L" and **adjusted by means of a screw graduated to ·001 inch,** giving close and accurate adjustment for any tool carried by the offset plate. **Heads are supplied unthreaded** and for customers to thread to their requirements the following instructions are given:—

To thread the head at "A" remove the graduated dial by lifting it from the screw by means of two screw drivers, one on either side. After taking out adjusting screw, remove take-up ring "L," sliding plate "M," and the key plate "N." Then clamp the surface "H" against a true running face plate and bring it to central, using an indicator against the outside surface "K." This will enable the diameter "A" to be bored and threaded true with Head.

If distance "B" is greater than the length of the milling machine spindle to which the Boring Head is to be fitted, stock can be removed from surface "G", which will bring the drill chuck closer to the end of machine spindle.

If the Boring Head is to be mounted on a taper shank, the distance "B" can be reduced to $\frac{3}{4}$ inch or $\frac{3}{8}$ inch, depending on the size of the head.



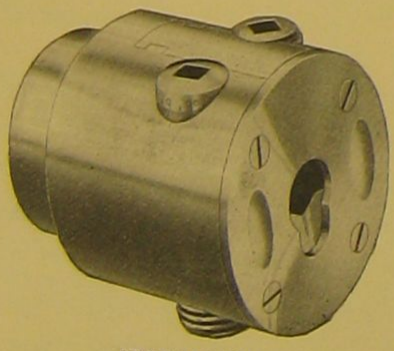
STYLE 3C HEAD WITH MICROMETER ADJUSTING SCREW

DIMENSIONS AND PRICES

No.	Hole in Body Diam. × Length "A" Ins.	Distance "B" Ins.	Diam. "C" Ins.	Diam. "D" Ins.	Diam. of Head "E" Ins.	Width of Head without Chuck "F" Ins.	Offset In.	Capacity of Drill Chuck Ins.	Price Complete with Chuck
30	$1\frac{1}{4}$ to 2 × $1\frac{5}{16}$ or 2 to 3 × 1	$1\frac{5}{16}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{7}{8}$	$2\frac{13}{16}$	$\frac{5}{16}$	$\frac{1}{2}$	£8 15 0
40	$1\frac{1}{2}$ „ $2\frac{1}{2}$ × $1\frac{3}{8}$ „ $2\frac{1}{2}$ „ $3\frac{1}{2}$ × $1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{5}{8}$	2	$4\frac{1}{2}$	3	$\frac{3}{8}$	$\frac{3}{4}$	9 7 6
60	$1\frac{3}{4}$ „ $3\frac{1}{2}$ × $1\frac{5}{8}$ „ $3\frac{1}{2}$ „ 5 × $1\frac{1}{4}$	$1\frac{5}{8}$	$2\frac{3}{8}$	$2\frac{7}{8}$	$6\frac{1}{8}$	$3\frac{3}{8}$	$\frac{1}{2}$	1	10 17 0
80	$2\frac{1}{4}$ „ $4\frac{1}{2}$ × $1\frac{7}{8}$ „ $4\frac{1}{2}$ „ 6 × $1\frac{1}{2}$	$1\frac{7}{8}$	$2\frac{3}{8}$	$3\frac{3}{4}$	$7\frac{1}{4}$	$3\frac{13}{16}$	$\frac{5}{8}$	1	12 6 0
100	$2\frac{1}{4}$ „ $5\frac{1}{2}$ × 2 „ $5\frac{1}{2}$ „ 7 × $1\frac{1}{2}$	2	3	$4\frac{3}{4}$	$9\frac{1}{2}$	$4\frac{1}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	15 12 6

Style "C" Boring Head

To meet the demand for a smaller Head Style "C" can be supplied:—Body diam. × length $1\frac{3}{8} \times 1\frac{5}{8}$ ins. Shank diam. $\frac{1}{2}$ in. Capacity of drill chuck $\frac{3}{16}$ to $\frac{3}{8}$ in. Offset, $\frac{1}{8}$ in. **Price £3 2 6 each.**



STYLE "F" HEAD

Style "F" Boring Head

This Head is a strong accurate low priced model offered as an alternative to Style "A."

It is fitted with two screws—one for gripping the drill or boring tool, the other graduated to ·001 inch and controlling the offset.

To use the Style "F" Head:—

To open jaws, turn gripping screw to left. If jaws do not open they are locked by adjusting screw, which should be given a few turns to the left. This will release jaws and allow them to be opened.

To close jaws, turn gripping screw to right. If jaws come to a stop without gripping tool, the adjusting screw should be given a few turns to right, which will allow jaws to be closed on the tool.

After tool is gripped between jaws it can be brought concentric with body by turning adjusting screw to right as far as possible.

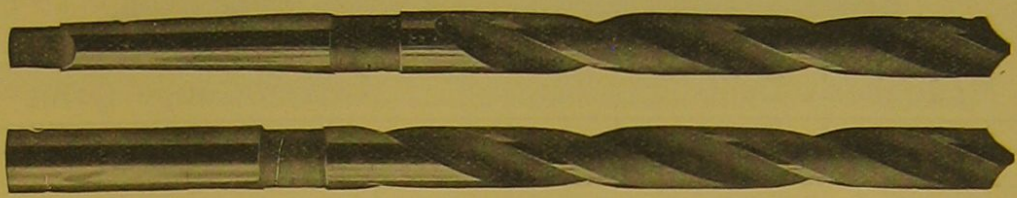
The adjusting screw should be turned to the left in order to obtain the offset feature.

Dimensions:—Body diam. × length, 3 × $3\frac{3}{8}$ ins.: Capacity for Drills, etc., 0 to $\frac{3}{4}$ ins. Capacity for Boring Tools, $\frac{1}{4}$ to $\frac{5}{16}$ ins. Offset with $\frac{5}{16}$ in. boring tools, $\frac{3}{8}$ in.: Offset with $\frac{1}{4}$ in. diam. boring tools, $\frac{1}{2}$ in. **Price £5 4 6 each.**

HIGH-SPEED STEEL TWIST DRILLS

Super COMET
High-Speed Steel Twist Drills (British Made)

Containing 18 per cent Tungsten — **Recommended for Continuous Production.**



Taper or Straight Shank Drills

Diameter of Drill Ins.	Price Each Straight or Taper Shank	Price Each Straight Shank Long Series	Length Overall Ins.	Morse Taper No.	Diameter of Drill Ins.	Price Each Straight or Taper Shank	Length Overall Ins.	Morse Taper No.	Diameter of Drill Ins.	Price Each Straight or Taper Shank	Length Overall Ins.	Morse Taper No.
1/16–7/64	—	3/-			51/64	18/-	10		1 15/32	72/-	14 7/8	
1/8	5/6	3/4	5 1/8		13/16	18/-	10		1 31/64	74/-	15	
9/64	5/6	3/4	5 1/4		53/64	19/-	10 1/4		1 1/2	76/-	15	
5/32	5/6	3/4	5 3/8		27/32	19/-	10 1/4	2	1 33/64	78/-	15	
11/64	5/6	3/6	5 1/2		55/64	20/6	10 1/2		1 17/32	80/-	15	
3/16	5/9	4/-	5 3/4		7/8	20/6	10 1/2		1 35/64	82/-	15 1/4	
13/64	5/9	4/2	5 7/8		57/64	22/-	10 5/8		1 9/16	84/-	15 1/4	
7/32	5/9	4/2	6		29/32	22/-	10 5/8		1 37/64	86/-	15 1/4	
15/64	5/9	5/-	6 1/8		59/64	23/6	10 3/4		1 19/32	88/-	15 1/4	
1/4	6/-	5/-	6 1/8		15/16	23/6	10 3/4		1 39/64	90/-	15 1/2	
17/64	6/3	5/2	6 1/4		61/64	25/-	10 7/8		1 5/8	92/-	15 1/2	
9/32	6/3	5/2	6 1/4		31/32	25/-	10 7/8		1 21/32	95/-	15 1/2	4
19/64	6/3	5/5	6 3/8		63/64	26/6	11		1 11/16	98/-	15 3/4	
5/16	6/3	5/5	6 3/8		1	26/6	11		1 23/32	101/-	15 3/4	
21/64	6/6	5/9	6 1/2	1	1 1/64	28/-	11 1/8		1 3/4	104/-	16	
11/32	6/6	5/9	6 1/2		1 1/32	29/-	11 1/8		1 25/32	108/-	16	
23/64	6/6	6/6	6 3/4		1 3/64	30/-	11 1/4		1 13/16	112/-	16 1/4	
3/8	6/6	6/6	6 3/4		1 1/16	31/-	11 1/4		1 27/32	116/-	16 1/4	
25/64	7/-	6/10	7		1 5/64	32/-	11 1/2	3	1 7/8	120/-	16 1/2	
13/32	7/-	6/10	7		1 3/32	33/-	11 1/2		1 29/32	125/-	16 1/2	
27/64	7/6		7 1/4		1 7/64	34/-	11 3/4		1 15/16	130/-	16 1/2	
7/16	7/6		7 1/4		1 1/8	35/-	11 3/4		1 31/32	135/-	16 1/2	
29/64	8/-	Larger	7 1/2		1 9/64	36/-	11 7/8		2	140/-	16 1/2	
15/32	8/-	Sizes	7 1/2		1 5/32	37/-	11 7/8		2 1/32	152/-	16 1/2	
31/64	8/6	take	7 3/4		1 11/64	38/-	12		2 1/16	155/-	17	
1/2	8/6	Price	7 3/4		1 3/16	39/-	12		2 3/32	160/-	17	
33/64	9/-	of	8		1 13/64	41/-	12 1/8		2 1/8	165/-	17	
17/32	9/-	Taper	8		1 7/32	42/-	12 1/8		2 5/32	170/-	17	
35/64	9/-	Shank	8 1/4		1 15/64	42/-	12 1/2		2 3/16	175/-	17	
9/16	12/-	Drills	8 1/4		1 1/4	44/-	12 1/2		2 7/32	180/-	17	
37/64	12/-		8 1/2		1 17/64	52/-	14 1/8		2 1/4	185/-	17 1/2	
19/32	12/6		8 1/2		1 9/32	53/-	14 1/8		2 5/16	195/-	17 1/2	
39/64	13/-		8 3/4		1 19/64	54/-	14 1/4		2 3/8	210/-	18	
5/8	13/-		8 3/4		1 5/16	55/-	14 1/4		2 7/16	225/-	18 1/2	5
41/64	13/6		9		1 21/64	57/-	14 3/8		2 1/2	240/-	19	
21/32	13/6		9		1 11/32	58/-	14 3/8		2 9/16	260/-	19 1/4	
43/64	14/-		9 1/4	2	1 23/64	60/-	14 1/2	4	2 5/8	275/-	19 1/2	
11/16	14/-		9 1/4		1 3/8	62/-	14 1/2		2 11/16	295/-	20	
45/64	15/-		9 1/2		1 25/64	63/-	14 5/8		2 3/4	315/-	20 1/2	
23/32	15/-		9 1/2		1 13/32	64/-	14 5/8		2 13/16	335/-	20 1/2	
47/64	16/-		9 3/4		1 27/64	66/-	14 3/4		2 7/8	355/-	21	
3/4	16/-		9 3/4		1 7/16	68/-	14 3/4		2 15/16	375/-	21	
49/64	17/-		9 7/8		1 29/64	70/-	14 7/8		3	400/-	22	
25/32	17/-		9 7/8									

HIGH-SPEED STEEL TWIST DRILLS

Super COMET High-Speed Steel Twist Drills (British Made)

Containing 18 per cent Tungsten. Recommended for Continuous Production.

Jobber's Drills

Diameter In.	Price Each	Decimal Equivalents In.	Length Overall Ins.
1/16	1/2	·0625	2
5/64	1/3	·0781	2¼
3/32	1/4	·0937	2½
7/64	1/4	·1093	2½
1/8	1/5	·125	2¾
9/64	1/6	·1406	3
5/32	1/7	·1562	3¼
11/64	1/8	·1718	3¼
3/16	1/9	·1875	3½
13/64	1/11	·2031	3¾
7/32	2/-	·2187	3¾
15/64	2/3	·2343	4
1/4	2/5	·25	4
17/64	2/7	·2656	4¼
9/32	2/9	·2812	4¼
19/64	3/-	·2968	4¼
5/16	3/3	·3125	4½
21/64	3/6	·3281	4¾
11/32	3/9	·3437	4¾
23/64	4/-	·3593	5
3/8	4/3	·375	5
25/64	4/6	·3906	5¼
13/32	4/9	·4063	5¼
27/64	5/-	·4218	5½
7/16	5/-	·4375	5½
29/64	5/3	·4531	5¾
15/32	5/6	·4688	5¾
31/64	5/9	·4843	6
1/2	6/-	·5	6

Letter Gauge Drills

Letter Size	Price Each	Decimal Equivalents In.	Length Overall Ins.
A	2/3	·234	4
B	2/3	·238	4
C	2/3	·242	4
D	2/3	·246	4
E	2/5	·250	4
F	2/5	·257	4
G	2/7	·261	4¼
H	2/7	·266	4¼
I	2/7	·272	4¼
J	2/9	·277	4¼
K	2/9	·281	4¼
L	3/-	·290	4¼
M	3/-	·295	4¼
N	3/3	·302	4½
O	3/3	·316	4½
P	3/3	·323	4½
Q	3/6	·332	4¾
R	3/6	·339	4¾
S	3/9	·348	4¾
T	4/-	·358	5
U	4/-	·368	5
V	4/3	·377	5
W	4/6	·386	5¼
X	4/6	·397	5¼
Y	4/9	·404	5¼
Z	4/9	·413	5¼

Wire Drills

Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.	Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.	Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.
1	2/-	·2280	3¾	19	1/8	·1660	3¼	37	1/4	·1040	2½
2	2/-	·2210	3¾	20	1/7	·1610	3¼	38	1/4	·1015	2½
3	1/11	·2130	3¾	21	1/7	·1590	3¼	39	1/4	·0995	2½
4	1/11	·2090	3¾	22	1/7	·1570	3¼	40	1/4	·0980	2½
5	1/11	·2055	3¾	23	1/7	·1540	3¼	41	1/4	·0960	2½
6	1/11	·2040	3¾	24	1/7	·1520	3¼	42	1/4	·0935	2½
7	1/10	·2010	3½	25	1/6	·1495	3	43	1/3	·0890	2¼
8	1/10	·1990	3½	26	1/6	·1470	3	44	1/3	·0860	2¼
9	1/10	·1960	3½	27	1/6	·1440	3	45	1/3	·0820	2¼
10	1/10	·1935	3½	28	1/6	·1405	3	46	1/3	·0810	2¼
11	1/10	·1910	3½	29	1/6	·1360	3	47	1/3	·0785	2¼
12	1/9	·1890	3½	30	1/5	·1285	2¾	48	1/3	·0760	2¼
13	1/9	·1850	3½	31	1/5	·1200	2¾	49	1/2	·0730	2
14	1/9	·1820	3½	32	1/5	·1160	2¾	50	1/2	·0700	2
15	1/9	·1800	3½	33	1/4	·1130	2½	51	1/2	·0670	2
16	1/9	·1770	3½	34	1/4	·1110	2½	52	1/2	·0635	2
17	1/8	·1730	3¼	35	1/4	·1100	2½				
18	1/8	·1695	3¼	36	1/4	·1065	2½				

HIGH-SPEED STEEL TWIST DRILLS

Super COMET High-Speed Steel Twist Drills (British Made)

Containing 18 per cent. Tungsten. **Recommended for Continuous Production.**

Taper or Straight Shank Drills (Metric Sizes)

Diam. m/m.	Price Each Straight or Taper Shank	Price Each Straight Shank Long Series	Equiv. in Inches	Length Overall m/m.	Morse Taper	Diam. m/m.	Price Each Straight or Taper Shank	Equiv. in Inches	Length Overall m/m.	Morse Taper	Diam. m/m.	Price Each Straight or Taper Shank	Equiv. in Inches	Length Overall m/m.	Morse Taper
2-3	—	3/-													
3½	5/6	3/4	·137	133		20½	18/-	·807	254		45	106/6	1·771	406	
4	5/6	3/6	·157	136		21	19/-	·826	260		46	112/-	1·811	413	
4½	5/9	3/6	·177	140		21½	19/-	·846	267	No. 2	47	116/-	1·850	416	
5	5/9	4/2	·196	149		22	20/6	·866	267		48	122/6	1·889	419	No. 4
5½	5/9	4/2	·216	152		22½	22/-	·885	270		49	130/-	1·929	419	
6	5/9	5/-	·236	155		23	22/-	·905	270		50	135/-	1·968	419	
6½	6/-	5/2	·255	159		23½	23/6	·925	273		51	150/-	2·007	419	
7	6/3	5/2	·275	159		24	25/-	·945	273		52	155/-	2·047	432	
7½	6/3	5/5	·295	162		24½	25/-	·964	276		53	160/-	2·086	432	
8	6/3	5/9	·314	162		25	26/6	·984	279		54	165/-	2·126	432	
8½	6/6	5/9	·334	165	No. 1	25½	26/6	1·003	279		55	170/-	2·165	432	
9	6/6	6/6	·354	165		26	29/-	1·023	282		56	177/6	2·204	444	
9½	6/6	6/6	·374	171		26½	30/-	1·043	286		57	185/-	2·244	444	
10	7/-	6/10	·393	171		27	31/-	1·062	286	No. 3	58	192/6	2·283	444	
10½	7/-		·413	178		27½	32/-	1·082	292		59	200/-	2·322	444	
11	7/6	Larger	·433	184		28	34/-	1·102	292		60	210/-	2·362	457	
11½	8/-		·452	190		28½	35/-	1·122	298		61	217/6	2·401	470	
12	8/-	Sizes	·472	190		29	36/-	1·141	298		62	225/-	2·440	470	
12½	8/6		·492	197		29½	37/-	1·161	305		63	235/-	2·480	483	
13	9/-	take	·511	203		30	39/-	1·181	305		64	245/-	2·519	483	No. 5
13½	9/-		·531	203		31	42/-	1·220	308		65	260/-	2·559	489	
14	9/-	price	·551	209		32	52/-	1·259	317		66	275/-	2·598	495	
14½	12/-		·570	209		33	55/-	1·299	362		67	285/-	2·637	495	
15	12/6	of	·590	216		34	58/-	1·338	365		68	295/-	2·677	508	
15½	13/-		·610	222		35	62/-	1·377	368		69	305/-	2·716	508	
16	13/-	Taper	·629	222		36	66/-	1·417	375		70	315/-	2·755	521	
16½	13/6		·649	229		37	70/-	1·456	378		71	325/-	2·795	521	
17	14/-	Shank	·669	229		38	76/-	1·496	381		72	340/-	2·834	521	
17½	14/-		·688	235	No. 2	39	80/-	1·535	384	No. 4	73	355/-	2·874	533	
18	15/-	Drills.	·708	241		40	86/-	1·574	387		74	370/-	2·913	533	
18½	16/-		·728	248		41	91/-	1·614	394		75	385/-	2·952	533	
19	16/-		·748	248		42	95/-	1·653	397		76	400/-	2·992	559	
19½	17/-		·767	251		43	98/-	1·692	400						
20	17/6		·787	254		44	102/-	1·732	403						

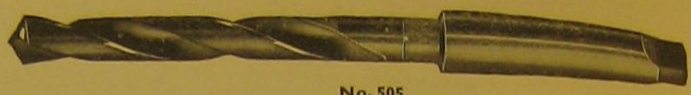
Jobbers' Drills (Metric Sizes)

Diam. m/m.	Price Each	Equivalent in Inches	Length Overall m/m.	Diam. m/m.	Price Each	Equivalent in Inches	Length Overall m/m.	Diam. m/m.	Price Each	Equivalent in Inches	Length Overall m/m.
1½	1/2	·0592	57	5½	2/-	·2165	95	9½	4/3	·3740	127
2	1/3	·0787	57	6	2/3	·2362	101	10	4/6	·3937	133
2½	1/4	·0984	64	6½	2/5	·2559	101	10½	4/9	·4134	133
3	1/5	·1181	70	7	2/9	·2756	108	11	5/-	·4330	140
3½	1/6	·1378	76	7½	3/-	·2953	108	11½	5/3	·4527	146
4	1/7	·1575	82	8	3/3	·3149	114	12	5/6	·4724	146
4½	1/9	·1772	89	8½	3/6	·3346	121	12½	6/-	·4921	152
5	1/10	·1968	89	9	3/9	·3543	121	13	6/3	·5118	152

HIGH-SPEED STEEL TWIST DRILLS

Union No. 500 with Regular Taper Shank (Made in Canada)
Union No. 505 with Oversize Taper Shank
Union No. 510 with Straight Shank (Long Series) up to 2 ins. diameter

No. 500



No. 505

No. 510

Diameter of Drill Ins.	Price Each Taper Shank	Price Each Straight Shank Long Series	Length Overall Ins. (Taper Shank).	Morse Taper No.
1/16 – 7/64	—	3/-	—	
1/8	5/6	3/4	5 3/16	
9/64	5/6	3/4	5 5/16	
5/32	5/6	3/4	5 7/16	
11/64	5/6	3/6	5 9/16	
3/16	5/9	4/-	5 13/16	
13/64	5/9	4/2	5 15/16	1
7/32	5/9	4/2	6 1/16	
15/64	5/9	5/-	6 3/16	
1/4	6/-	5/-	6 3/16	
17/64	6/3	5/2	6 1/4	
9/32	6/3	5/2	6 1/4	
19/64	6/3	5/5	6 3/8	
5/16	6/3	5/5	6 3/8	
21/64	6/6	5/9	6 1/2	
11/32	6/6	5/9	6 1/2	1 or 2
23/64	6/6	6/6	6 3/4	No. 1 Shank will be furnished unless No. 2 is specified.
3/8	6/6	6/6	6 3/4	
25/64	7/-	6/10	7	
13/32	7/-	6/10	7	
27/64	7/6	Larger	7 1/4	
7/16	7/6	Sizes	7 1/4	
29/64	8/-	take	7 1/2	
15/32	8/-	Prices	7 1/2	
31/64	8/6	of	8 1/4	
1/2	8/6	Taper	8 1/4	
33/64	9/-	Shank	8 1/2	
17/32	9/-	Drills.	8 1/2	
35/64	9/-		8 3/4	
9/16	12/-		8 3/4	2
37/64	12/-		8 3/4	
19/32	12/6		8 3/4	
39/64	13/-		8 3/4	
5/8	13/-		8 3/4	
41/64	13/6		9	
21/32	13/6		9	
43/64	14/-		9 1/4	2 or 3
11/16	14/-		9 1/4	No. 2 Shank will be furnished unless No. 3 is specified.
45/64	15/-		9 1/2	
23/32	15/-		9 1/2	
47/64	16/-		9 3/4	
3/4	16/-		9 3/4	
49/64	17/-		9 7/8	
25/32	17/-		9 7/8	

Diameter of Drill Ins.	Price Each Taper Shank	Length Overall Ins. (Taper Shank).	Morse Taper No.
51/64	18/-	10 3/4	
13/16	18/-	10 3/4	
53/64	19/-	10 3/4	
27/32	19/-	10 3/4	
55/64	20/6	10 3/4	
7/8	20/6	10 3/4	
57/64	22/-	10 3/4	3
29/32	22/-	10 3/4	
59/64	23/6	10 3/4	
15/16	23/6	10 3/4	
61/64	25/-	11	
31/32	25/-	11	
63/64	26/6	11	3 or 4
1	26/6	11	No. 3 Shank will be furnished unless No. 4 is specified.
1 1/64	28/-	11 1/8	
1 1/32	29/-	11 1/8	
1 3/64	30/-	11 1/4	
1 1/16	31/-	11 1/4	
1 5/64	32/-	12 1/2	
1 3/32	33/-	12 1/2	
1 7/64	34/-	12 3/4	
1 1/8	35/-	12 3/4	
1 9/64	36/-	12 7/8	
1 5/32	37/-	12 7/8	
1 11/64	38/-	13	
1 3/16	39/-	13	
1 13/64	41/-	13 1/8	
1 11/32	42/-	13 1/8	
1 15/64	42/-	13 1/2	
*1 1/4	44/-	13 1/2	
1 17/64	52/-	14 1/8	4
1 9/32	53/-	14 1/8	
1 19/64	54/-	14 1/4	
1 5/16	55/-	14 1/4	
1 21/64	57/-	14 3/8	
1 11/32	58/-	14 3/8	
1 23/64	60/-	14 1/2	
1 3/8	62/-	14 1/2	
1 25/64	63/-	14 5/8	
1 13/32	64/-	14 5/8	
1 27/64	66/-	14 3/4	
1 7/16	68/-	14 3/4	
1 29/64	70/-	14 7/8	

Diameter of Drill Ins.	Price Each Taper Shank	Length Overall Ins. (Taper Shank).	Morse Taper No.
1 15/32	72/-	14 7/8	
1 31/64	74/-	15	4
*1 1/2	76/-	15	
1 33/64	78/-	16 3/8	
1 17/32	80/-	16 3/8	
1 35/64	82/-	16 5/8	
1 9/16	84/-	16 5/8	
1 37/64	86/-	16 15/16	
1 19/32	88/-	16 15/16	
1 39/64	90/-	17 1/16	
1 5/8	92/-	17 1/16	
1 21/32	95/-	17 3/16	
1 11/16	98/-	17 3/16	5
1 23/32	101/-	17 3/16	
1 3/4	104/-	17 3/16	
1 25/32	108/-	17 3/16	
1 13/16	112/-	17 3/16	
1 27/32	116/-	17 3/16	
1 7/8	120/-	17 3/8	
1 29/32	125/-	17 3/8	
1 15/16	130/-	17 3/8	
1 31/32	135/-	17 3/8	
*2	140/-	17 3/8	
2 1/32	152/-	17 3/8	
2 1/16	155/-	17 3/8	
2 3/32	160/-	17 3/8	
2 1/8	165/-	17 3/8	
2 5/32	170/-	17 3/8	
2 3/16	175/-	17 3/8	
2 7/32	180/-	17 3/8	5 or 6
2 1/4	185/-	17 3/8	No. 5 Shank will be furnished unless No. 6 is specified.
2 5/16	195/-	17 3/8	
2 3/8	210/-	17 3/8	
2 7/16	225/-	18 1/4	
2 1/2	240/-	18 3/4	
2 9/16	260/-	19 1/2	
2 5/8	275/-	19 1/2	
2 11/16	295/-	20 3/8	
2 3/4	315/-	20 3/8	
2 13/16	335/-	21 1/8	
2 7/8	355/-	21 1/8	
2 15/16	375/-	21 3/4	
3	400/-	21 3/4	

*Straight Shank Drills, in 64th sizes larger than 1 1/2 ins., and 32nd sizes larger than 1 1/2 ins., and all sizes larger than 2 ins. diameter can only be supplied at special prices.

"Union" H.S.S. Drills for Oil Holes in Crankshafts can be made to order in various quantities in sizes 1/16 to 1/2 in. diam. by 8 or 12 ins. long overall.

HIGH-SPEED STEEL TWIST DRILLS

JOBBERS' AND LETTER GAUGE DRILL

SINGLE FLUTE DRILL FOR WOOD

Union Jobbers' Drills, No. 515 and Union Single Flute Drills, No. 805—for Wood (Made in Canada)

Union Letter Gauge Drills, No. 520

Diameter In.	Price Each	Decimal Equivalents In.	Length Overall Ins.
1/16	1/2	·0625	2 1/2
5/64	1/3	·0781	2 5/8
3/32	1/4	·0937	2 3/4
7/64	1/4	·1093	2 7/8
1/8	1/5	·125	3
9/64	1/6	·1406	3 1/8
5/32	1/7	·1562	3 1/4
11/64	1/8	·1718	3 3/8
3/16	1/9	·1875	3 1/2
13/64	1/11	·2031	3 5/8
7/32	2/-	·2187	3 3/4
15/64	2/3	·2343	3 7/8
1/4	2/5	·25	4
17/64	2/7	·2656	4 1/8
9/32	2/9	·2812	4 1/4
19/64	3/-	·2968	4 3/8
5/16	3/3	·3125	4 1/2
21/64	3/6	·3281	4 5/8
11/32	3/9	·3437	4 3/4
23/64	4/-	·3593	4 7/8
3/8	4/3	·375	5
25/64	4/6	·3906	5 1/8
13/32	4/9	·4063	5 1/4
27/64	5/-	·4218	5 3/8
7/16	5/-	·4375	5 1/2
29/64	5/3	·4531	5 5/8
15/32	5/6	·4688	5 3/4
31/64	5/9	·4843	5 7/8
1/2	6/-	·5	6

Letter Size	Price Each	Decimal Equivalents In.	Length Overall Ins.
A	2/3	·234	3 13/16
B	2/3	·238	3 13/16
C	2/3	·242	3 13/16
D	2/3	·246	3 13/16
E	2/5	·250	3 13/16
F	2/5	·257	4 1/4
G	2/7	·261	4 1/4
H	2/7	·266	4 1/4
I	2/7	·272	4 1/4
J	2/9	·277	4 1/4
K	2/9	·281	4 1/4
L	3/-	·290	4 1/4
M	3/-	·295	4 1/4
N	3/3	·302	4 1/4
O	3/3	·316	4 1/4
P	3/3	·323	4 5/8
Q	3/6	·332	4 5/8
R	3/6	·339	4 3/4
S	3/9	·348	4 3/4
T	4/-	·358	4 7/8
U	4/-	·368	4 7/8
V	4/3	·377	5
W	4/6	·386	5 1/8
X	4/6	·397	5 1/8
Y	4/9	·404	5 1/4
Z	4/9	·413	5 3/8

Union Wire Drills, No. 525 Union Single Flute Drills, No. 805—for Wood

Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.
1	2/-	·2280	4
2	2/-	·2210	3 15/16
3	1/11	·2130	3 15/16
4	1/11	·2090	3 7/8
5	1/11	·2055	3 13/16
6	1/11	·2040	3 13/16
7	1/10	·2010	3 3/4
8	1/10	·1990	3 11/16
9	1/10	·1960	3 11/16
10	1/10	·1935	3 5/8
11	1/10	·1910	3 9/16
12	1/9	·1890	3 9/16
13	1/9	·1850	3 1/2
14	1/9	·1820	3 7/16
15	1/9	·1800	3 7/16
16	1/9	·1770	3 3/8
17	1/8	·1730	3 5/16
18	1/8	·1695	3 5/16
19	1/8	·1660	3 1/4
20	1/7	·1610	3 3/16

Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.
21	1/7	·1590	3 3/16
22	1/7	·1570	3 1/8
23	1/7	·1540	3 1/16
24	1/7	·1520	3 1/16
25	1/6	·1495	3
26	1/6	·1470	2 15/16
27	1/6	·1440	2 15/16
28	1/6	·1405	2 7/8
29	1/6	·1360	2 13/16
30	1/5	·1285	2 13/16
31	1/5	·1200	2 3/4
32	1/5	·1160	2 11/16
33	1/4	·1130	2 11/16
34	1/4	·1110	2 5/8
35	1/4	·1100	2 9/16
36	1/4	·1065	2 9/16
37	1/4	·1040	2 1/2
38	1/4	·1015	2 7/16
39	1/4	·0995	2 7/16
40	1/4	·0980	2 3/8

Gauge No.	Price Each	Decimal Equivalents In.	Length Ins.
41	1/4	·0960	2 5/16
42	1/4	·0935	2 5/16
43	1/3	·0890	2 1/4
44	1/3	·0860	2 3/16
45	1/3	·0820	2 3/16
46	1/3	·0810	2 1/8
47	1/3	·0785	2 1/16
48	1/3	·0760	2 1/16
49	1/2	·0730	2
50	1/2	·0700	1 15/16
51	1/2	·0670	1 15/16
52	1/2	·0635	1 7/8
53	1/1	·0595	1 13/16
54	1/1	·0550	1 13/16
55	1/1	·0520	1 3/4
56	1/1	·0465	1 11/16
57	1/1	·0430	1 11/16
58	1/1	·0420	1 5/8
59	1/1	·0410	1 9/16
60	1/1	·0400	1 9/16

Union High-Speed Steel Twist Drills (Made in Canada)

Metric Sizes

Regular Taper Shank, No. 1270; Straight Shank, No. 1275 (Long Series) Drills

Diam. m/m.	Price Each Straight or Taper Shank	Price Each Straight Shank Long Series	Equiv. in Inches	Length Overall m/m.	Morse Taper
2-3	5/6	3/-	·1181	116	No. 1.
3½	5/6	3/4	·1378	130	
4	5/6	3/6	·1575	137	
4½	5/9	3/6	·1771	140	
5	5/9	4/2	·1968	149	
5½	5/9	4/2	·2165	152	
6	5/9	5/-	·2362	156	
6½	6/-	5/2	·2559	156	
7	6/3	5/2	·2756	159	
7½	6/3	5/5	·2953	162	
8	6/3	5/9	·3149	162	
8½	6/6	5/9	·3346	165	
9	6/6	6/6	·3543	165	
9½	6/6	6/6	·3740	172	
10	7/-	6/10	·3937	178	
10½	7/-		·4134	184	
11	7/6	Larger	·4330	184	
11½	8/-		·4527	191	
12	8/-	Sizes	·4724	191	
12½	8/6	take	·4921	197	
13	9/-		·5118	203	
13½	9/-	price	·5315	203	
14	9/-		·5512	210	
14½	12/-	of	·5708	216	
15	12/6		·5905	216	
15½	13/-	Taper	·6102	222	
16	13/-		·6299	222	
16½	13/6	Shank	·6496	229	
17	14/-		·6693	229	No. 2.
17½	14/-	Drills.	·6890	241	
18	15/-		·7086	241	
18½	16/-		·7283	248	
19	16/-		·7480	248	
19½	17/-		·7677	251	
20	17/6		·7874	251	No. 2.
20½	18/-		·8071	254	
21	19/-		·8267	260	
21½	19/-		·8464	267	
22	20/6		·8661	267	
22½	22/-		·8858	270	
23	22/-		·9055	270	
23½	23/6		·9252	273	
24	25/-		·9449	273	
24½	25/-		·9646	276	
25	26/6		·9842	279	
25½	26/6		1·0039	283	
26	29/-		1·0236	283	
26½	30/-		1·0433	286	
27	31/-		1·0629	286	
27½	32/-		1·0827	292	No. 3.
28	34/-		1·1024	292	
28½	35/-		1·1220	298	
29	36/-		1·1417	302	
29½	37/-		1·1614	305	
30	39/-		1·1811	305	
31	42/-		1·2205	308	
32	52/-		1·2598	318	
33	55/-		1·2992	362	
34	58/-		1·3386	365	
35	62/-		1·3779	368	
36	66/-		1·4173	375	
37	70/-		1·4567	378	
38	76/-		1·4961	381	No. 4.
39	80/-		1·5354	381	
40	86/-		1·5748	387	
41	91/-		1·6142	394	
42	95/-		1·6536	394	
43	98/-		1·6929	400	
44	102/-		1·7323	406	No. 4.
45	106/6		1·7717	406	
46	112/-		1·8110	413	
47	116/-		1·8504	413	
48	122/6		1·8898	419	
49	130/-		1·9291	419	
50	135/-		1·9685	419	
51	150/-		2·0079	419	
52	155/-		2·0473	432	
53	160/-		2·0866	432	
54	165/-		2·1259	432	
55	170/-		2·1654	432	
56	177/6		2·2047	445	
57	185/-		2·2441	445	
58	192/6		2·2835	445	
59	200/-		2·3228	457	
60	210/-		2·3622	457	
61	217/6		2·4015	470	
62	225/-		2·4409	483	
63	235/-		2·4803	483	No. 5.
64	245/-		2·5197	489	
65	260/-		2·5591	489	
66	275/-		2·5984	495	
67	285/-		2·6378	508	
68	295/-		2·6772	508	
69	305/-		2·7165	521	
70	315/-		2·7559	521	
71	325/-		2·7952	521	
72	340/-		2·8347	533	
73	355/-		2·8740	533	
74	370/-		2·9134	533	
75	385/-		2·9527	559	
76	400/-		2·9921	559	

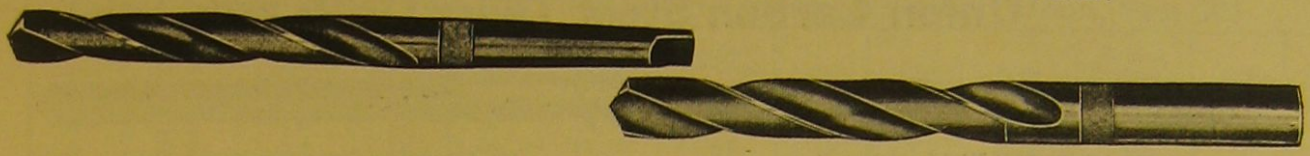
Union Jobbers' Drills, No. 1280 (Metric Sizes)

(Made in Canada)

Diam. m/m.	Price Each	Equivalent in Inches	Length Overall m/m.
1½	1/2	·0591	46
2	1/3	·0787	53
2½	1/4	·0984	60
3	1/5	·1181	70
3½	1/6	·1378	73
4	1/7	·1575	79
4½	1/9	·1772	86
5	1/10	·1969	93
5½	2/-	·2165	100
6	2/3	·2362	102
6½	2/5	·2559	105
7	2/9	·2756	108
7½	3/-	·2953	111
8	3/3	·3150	114
8½	3/6	·3346	117
9	3/9	·3543	124
9½	4/3	·3740	127
10	4/6	·3937	130
10½	4/9	·4134	133
11	5/-	·4331	140
11½	5/3	·4528	143
12	5/6	·4724	146
12½	6/-	·4921	162
13	6/3	·5118	167

CARBON STEEL TWIST DRILLS

Union Carbon Steel Twist Drills (Made in Canada)



No. 100 with Taper Shank; or No. 110 with Straight Shank (Taper Length) up to 2 inches diameter only

Diam. Ins.	Price Each	Length Ins. T.S. Drills	Morse Taper	Diam. Ins.	Price Each	Length Ins. T.S. Drills	Morse Taper	Diam. Ins.	Price Each	Length Ins. T.S. Drills	Morse Taper	Diam. Ins.	Price Each	Length Ins. T.S. Drills	Morse Taper
*1/10		4 7/16	No. 1 Socket. 1 Sleeve.	39-64	6/8	8 3/4	No. 2 Socket. " 2 Sleeve.	1 17/64-1 9/32	24/-	14 1/8	No. 4 Socket. " 4 Sleeve.	1 29/32	67/9	16 1/2	No. 4 Socket " 4 Sleeve
*6/64		4 9/16		41-64-21/32	7/1	9		1 19/64-1 5/16	25/-	14 1/4		1 15/16	70/10	16 5/8	
*3/32		4 5/8		43-64-11/16	7/6	9 1/4						1 31/32	74/-	16 5/8	
*7/64		4 11/16		45-64-23/32	7/11	9 1/2		1 21/64-1 11/32	26/1	14 3/8		*2	77/1	16 5/8	
								1 23/64-1 3/8	27/1	14 1/2					
1/8	1/11	5 3/16		47-64-3/4	8/4	9 3/4		1 25/64-1 13/32	29/2	14 5/8		2 1/32	80/3	17 3/8	
5/32	1/11	5 7/16		49-64-25/32	8/9	9 7/8		1 27/64-1 7/16	31/3	14 3/4		2 1/16	83/4	17 3/8	
3/16	2/1	5 13/16		51-64-13/16	9/2	10						2 1/8	89/7	17 3/8	
7/32	2/4	6 1/16						1 29/64-1 15/32	33/4	14 7/8		2 3/16	95/10	17 3/8	
				53-64-27/32	10/-	10		1 31/64-1 1/2*	35/5	15					
15-64-1/4	2/6	6 3/16		55-64-7/8	10/10	10		1 17/32	37/6	15		2 1/4	102/1	17 3/8	
17-64-9/32	2/9	6 1/4		57-64-29/32	11/8	10		1 9/16	39/7	15 1/4		2 5/16	108/4	17 3/8	
19-64-5/16	2/11	6 3/8		59-64-15/16	12/6	10 3/4		1 19/32	41/8	15 9/16		2 3/8	114/7	17 3/8	
21-64-11/32	3/2	6 1/2						1 5/8	43/9	15 11/16		2 7/16	120/10	18 3/4	
				61-64-31/32	13/7	10 7/8						2 1/2	127/1	18 3/4	
23-64-3/8	3/4	6 3/4		63-64-1	14/7	11						2 9/16	133/4	19 1/2	
				1 1/64-1 1/32	15/8	11 1/8	No. 3 Socket. " 3 Sleeve.	1 21/32	45/10	15 13/16					
25-64-13/32	3/9	7		1 3/64-1 1/16	16/8	11 1/4		1 11/16	47/11	15 13/16					
27-64-7/16	4/2	7 1/16						1 23/32	50/-	16 1/4		2 5/8	141/8	19 1/2	
29-64-15/32	4/7	7 1/2		1 5/64-1 3/32	17/9	11 1/2		1 3/4	52/1	16 1/4		2 11/16	150/-	20 3/8	
				1 7/64-1 1/8	18/9	11 3/4						2 3/4	158/4	20 3/8	
31-64-1/2	5/-	7 11/16		1 9/64-1 5/32	19/10	11 7/8		1 25/32	55/3	16 1/4		2 13/16	168/9	21 1/8	
33-64-17/32	5/5	7 15/16		1 11/64-1 3/16	20/10	12		1 13/16	58/4	16 5/16					
35-64-9/16	5/10	8 3/16						1 27/32	61/6	16 5/16		2 7/8	179/2	21 1/8	
37-64-19/32	6/3	8 1/2	No. 2	1 13/64-1 7/32	21/11	12 1/8		1 7/8	64/7	16 1/2		2 15/16	189/7	21 3/4	
				1 15/64-1 1/4*	22/11	12 1/2						3	200/-	21 3/4	

* Straight Shank Drills 1/8 in. to 1/4 in., all 64th sizes larger than 1 1/4 in., and 32nd sizes larger than 1 1/2 in. diam., and all sizes larger than 2 inches diameter can only be supplied at special prices.

Metric Sizes

No. 270 with Taper Shank; or No. 275 with Straight Shank (Taper Length)

Diam. m/m.	Price Each	Diam. in Inch Decimals	Length m/m.	Morse Taper Shank	Diam. m/m.	Price Each	Diam. in Inch Decimals	Length m/m.	Morse Taper Shank	Diam. m/m.	Price Each	Diam. in Inch Decimals	Length m/m.	Morse Taper Shank
3	1/11	·1181	116	No. 1.	19	8/4	·7480	248	No. 2	35	29/2	1·3779	368	No. 4.
3½	1/11	·1378	130		19½	8/9	·7677	251		35½	29/2	1·3977	372	
4	2/1	·1575	137		20	9/2	·7874	251		36	31/3	1·4173	375	
4½	2/1	·1771	140		20½	9/2	·8071	254		36½	31/3	1·4370	375	
5	2/4	·1968	149		21	10/-	·8267	260		37	33/4	1·4567	378	
5½	2/4	·2165	152		21½	10/10	·8464	267		37½	35/5	1·4764	378	
6	2/6	·2362	156		22	10/10	·8661	267		38	35/5	1·4961	381	
6½	2/9	·2559	156		22½	11/8	·8858	270		38½	37/6	1·5157	381	
7	2/9	·2756	159		23	11/8	·9055	270		39	39/7	1·5354	381	
7½	2/11	·2953	162		23½	12/6	·9252	273		39½	39/7	1·5551	387	
8	3/2	·3149	162		24	13/7	·9449	273		40	41/8	1·5748	387	
8½	3/2	·3346	165		24½	13/7	·9646	276		40½	43/9	1·5945	387	
* 9	3/4	·3543	172		25	14/7	·9842	279		41	43/9	1·6142	394	
9½	3/4	·3740	172		25½	15/8	1·0039	283		41½	45/10	1·6338	394	
10	3/9	·3937	178		26	15/8	1·0236	283		42	45/10	1·6536	394	
10½	4/2	·4134	184		26½	16/8	1·0433	286		42½	47/11	1·6733	400	
11	4/2	·4330	184		27	17/9	1·0629	286		43	50/-	1·6929	400	
11½	4/7	·4527	191		27½	17/9	1·0827	292		43½	50/-	1·7126	400	
12	5/-	·4724	191		28	18/9	1·1024	292		44	52/1	1·7323	406	
12½	5/-	·4921	197		28½	18/9	1·1220	298		44½	55/3	1·7519	406	
13	5/5	·5118	203		29	19/10	1·1417	302		45	55/3	1·7717	406	
13½	5/10	·5315	203		29½	20/10	1·1614	305		45½	58/4	1·7914	413	
14	5/10	·5512	210		30	20/10	1·1811	305		46	58/4	1·8110	413	
14½	6/3	·5708	216		30½	21/11	1·2008	308		46½	61/6	1·8307	413	
15	6/3	·5905	216		31	22/11	1·2205	308		47	64/7	1·8504	413	
15½	6/8	·6102	222		31½	22/11	1·2401	318		47½	64/7	1·8701	419	
16	7/1	·6299	222	No. 2	32	24/-	1·2598	318	No. 4.	48	67/9	1·8898	419	
16½	7/1	·6496	229		32½	24/-	1·2795	359		48½	70/10	1·9094	419	
17	7/6	·6693	229		33	25/-	1·2992	362		49	70/10	1·9291	419	
17½	7/11	·6890	241		33½	26/1	1·3190	362		49½	74/-	1·9488	419	
18	7/11	·7086	241		34	26/1	1·3386	365		50	74/-	1·9685	419	
18½	8/4	·7283	248		34½	27/1	1·3583	368						

CARBON STEEL TWIST DRILLS

Union Carbon Steel Twist Drills (Made in Canada)

No. 115 JOBBERS' TWIST DRILL

No. 210 JOBBERS' STRAIGHT FLUTED DRILL

No. 305 SINGLE FLUTE DRILL FOR WOOD

Jobbers' Drills, No. 115 Twist and No. 210 Straight Flute and No. 305 Single Flute Drill for Wood

Diam. In.	Price Per Doz.	Length Ins.	Diam. In.	Price Per Doz.	Length Ins.	Diam. In.	Price Per Doz.	Length Ins.	Diam. In.	Price Per Doz.	Length Ins.
1/32	6/3	1 7/16	5/32	7/11	3 1/4	9/32	15/10	4 1/4	13/32	29/2	5 1/4
5/64	6/6	1 11/16	11/64	8/4	3 3/8	19/64	16/8	4 3/8	27/64	32/4	5 3/8
3/32	6/8	2 1/8	3/16	9/5	3 1/2	5/16	18/2	4 1/2	7/16	35/5	5 1/2
7/64	6/11	2 1/8	13/64	10/5	3 5/8	21/64	19/7	4 5/8	29/64	38/7	5 5/8
1/8	7/1	2 1/4	7/32	11/6	3 3/4	11/32	21/1	4 3/4	15/32	41/8	5 3/4
9/64	7/4	2 5/8	15/64	12/6	3 7/8	23/64	22/11	4 7/8	31/64	45/10	5 7/8
5/32	7/6	3	1/4	13/7	4	3/8	25/-	5	1/2	50/-	6
11/64	7/9	3 1/8	17/64	14/7	4 1/8	25/64	27/1	5 1/8			

Jobbers' m/m. Sizes, No. 280

Diam. m/m.	Price Per Doz.	Diam. in Decimals of 1 Inch	Approx. Whole Length m/m.	Diam. m/m.	Price Per Doz.	Diam. in Decimals of 1 Inch	Approx. Whole Length m/m.	Diam. m/m.	Price Per Doz.	Diam. in Decimals of 1 Inch	Approx. Whole Length m/m.
·5	6/3	·0197	25	4·25	8/4	·1673	84	8·0	18/9	·3150	114
·75	6/3	·0295	35	4·5	8/4	·1772	86	8·25	20/10	·3248	117
1·0	6/3	·0394	39	4·75	9/5	·1870	90	8·5	20/10	·3346	117
1·25	6/6	·0492	44	5·0	9/5	·1969	93	8·75	22/11	·3445	121
1·5	6/8	·0591	46	5·25	10/10	·2067	98	9·0	22/11	·3543	124
1·75	6/8	·0689	49	5·5	10/10	·2165	100	9·25	25/-	·3642	124
2·0	6/11	·0787	53	5·75	12/4	·2265	102	9·5	25/-	·3740	127
2·25	7/1	·0886	57	6·0	12/4	·2362	102	9·75	27/1	·3839	130
2·5	7/1	·0984	60	6·25	13/9	·2461	102	10·0	27/1	·3937	130
2·75	7/4	·1083	67	6·5	13/9	·2559	105	10·5	30/3	·4134	133
3·0	7/4	·1181	70	6·75	15/3	·2658	108	11·0	33/4	·4331	140
3·25	7/6	·1280	71	7·0	15/3	·2756	108	11·5	37/6	·4528	143
3·5	7/6	·1378	73	7·25	16/8	·2854	108	12·0	41/8	·4724	146
3·75	7/11	·1476	76	7·5	16/8	·2953	111	12·5	45/10	·4921	162
4·0	7/11	·1575	79	7·75	18/9	·3051	111	13·0	52/1	·5118	167

Wire Drills, No. 125 Twist and No. 215 Straight Flute and No. 305 Single Flute Drill for Wood (illustrated above)

No. 125 TWIST

No. 215 STRAIGHT FLUTE

No. by Gauge	Price Per Doz.	Length, Ins.	No. by Gauge	Price Per Doz.	Length, Ins.
1 to 5	11/6	4 to 3 13/16	41 to 45	7/1	2 5/16 to 2 3/16
6 ,, 10	10/5	3 13/16 ,, 3 5/8	46 ,, 50	6/11	2 1/8 ,, 1 15/16
11 ,, 15	9/5	3 9/16 ,, 3 7/16	51 ,, 55	6/8	1 15/16 ,, 1 3/4
16 ,, 20	8/4	3 3/8 ,, 3 5/16	56 ,, 60	6/6	1 11/16 ,, 1 9/16
21 ,, 25	7/11	3 3/16 ,, 3	61 ,, 65	6/3	1 1/2 all
26 ,, 30	7/6	2 15/16 ,, 2 13/16	66 ,, 70	6/3	1 7/16 to 1 5/16
31 ,, 35	7/4	2 3/4 ,, 2 9/16	71 ,, 75	6/3	1 5/16 ,, 1 1/16
36 ,, 40	7/4	2 9/16 ,, 2 3/8	76 ,, 80	6/3	1 ,, 3/4

No. 215 Straight Flute Drills supplied in sizes No. 1 to 60 only

CARBON STEEL TWIST DRILLS

Union Carbon Steel Twist Drills (Made in Canada)

Letter Gauge Drills, No. 120, and Single Flute Drills for Wood, No. 305

Letter Size	Price Per Doz.	Decimal Equivalent In.	Length Ins.	Letter Size	Price Per Doz.	Decimal Equivalent In.	Length Ins.	Letter Size	Price Per Doz.	Decimal Equivalent Ins.	Length Ins.
A	12/6	·234	3 13/16	J	15/5	·277	4 1/4	S	21/6	·348	4 3/4
B	12/9	·238	3 13/16	K	15/10	·281	4 1/4	T	22/1	·358	4 7/8
C	12/11	·242	3 13/16	L	16/3	·290	4 1/4	U	22/11	·368	4 7/8
D	13/2	·246	3 13/16	M	16/8	·295	4 1/4	V	25/-	·377	5
E	13/7	·250	3 13/16	N	17/9	·302	4 1/4	W	27/1	·386	5 1/8
F	14/-	·257	4 1/4	O	18/4	·316	4 1/4	X	28/2	·397	5 1/8
G	14/5	·261	4 1/4	P	19/2	·323	4 5/8	Y	29/2	·404	5 1/4
H	14/10	·266	4 1/4	Q	19/10	·332	4 5/8	Z	30/3	·413	5 3/8
I	15/3	·272	4 1/4	R	20/10	·339	4 3/4				

Bit Stock Drills, No. 130

For Metal or Wood

Diam. In.	Price Per Doz.	Whole Length Ins.	Diam. In.	Price Per Doz.	Whole Length Ins.	Diam. In.	Price Per Doz.	Whole Length Ins.
1/16	16/8	3 3/8	5/16	29/2	5 1/8	9/16	64/7	7 1/2
3/32	16/8	3 5/8	11/32	33/4	5 7/8	19/32	69/10	7 1/2
1/8	16/8	3 7/8	3/8	35/5	5 7/8	5/8	75/-	7 1/2
						11/16	87/6	7 1/2
5/32	16/8	4 1/8	13/32	38/7	5 7/8	3/4	100/-	7 1/2
3/16	16/8	4 3/8	7/16	43/9	6 1/4	13/16	112/6	7 1/2
7/32	18/9	4 5/8	15/32	49/-	6 3/8	7/8	125/-	7 1/2
1/4	20/10	5 3/16	1/2	54/2	6 3/4	15/16	137/6	7 1/2
9/32	25/-	5 3/8	17/32	59/5	7 1/2	1	150/-	7 1/2

Taper Square Shank Drills, Nos. 135 and 140

No. 140 with No. 2 or Large Shank
1/2 × 3/4 × 1 3/4 ins.

No. 2 Shank always furnished unless otherwise specified

No. 135 with No. 1 or Small Shank
3/4 × 5/8 × 1 1/2 ins.

Diam. In.	Price Each	Length Ins. No. 2 Shank	Diam. In.	Price Each	Length Ins. No. 2 Shank	Diam. In.	Price Each	Length Ins. No. 2 Shank	Diam. Ins.	Price Each	Length Ins. No. 2 Shank	Diam. Ins.	Price Each	Length Ins. No. 2 Shank
1/8	3/9	4 1/2	9/32	5/-	6	5/8	5/10	6 1/2	7/8	8/7	7 1/2	1 1/8	12/11	9
5/32	4/-	4 5/8	13/32	5/3	6 1/4	21/32	6/1	6 1/2	29/32	9/2	7 3/4	1 3/16	14/-	9
3/16	4/-	4 7/8	7/16	5/3	6 1/4	11/16	6/1	6 1/2	15/16	9/7	8	1 1/4	15/3	9
7/32	4/2	5	15/32	5/5	6 1/4	23/32	6/3	6 1/2	31/32	10/-	8 1/4	1 5/16	16/3	9
1/4	4/2	5	1/2	5/5	6 1/2	3/4	6/6	6 1/2	1	10/8	8 1/2	1 3/8	17/6	9
9/32	4/5	5	17/32	5/8	6 1/2	25/32	6/11	6 3/4	1 1/32	11/3	8 3/4	1 7/16	18/9	9
5/16	4/7	5	9/16	5/8	6 1/2	13/16	7/4	7	1 1/16	11/11	9	1 1/2	20/-	9
11/32	4/10	5	19/32	5/10	6 1/2	27/32	7/11	7 1/4						

Straight Shank Wood Drills, No. 225

Diam. In.	Price Each	Length Ins.	Diam. In.	Price Each	Length Ins.	Diam. Ins.	Price Each	Length Ins.
1/8	1/8	3	13/32	3/7	5 1/4	13/16	8/9	8
5/32	1/11	3 1/4	7/16	3/9	5 1/2	7/8	10/5	8 1/2
3/16	2/1	3 1/2	15/32	4/2	5 3/4	15/16	12/1	9
7/32	2/4	3 3/4	1/2	4/7	6	1	13/7	9 1/8
1/4	2/6	4	17/32	5/-	6 1/8	1 1/16	15/8	11 1/4
9/32	2/9	4 1/4	9/16	5/5	6 1/4	1 1/8	17/9	11 1/2
5/16	2/11	4 1/2	5/8	6/3	6 1/2	1 3/16	19/10	12
11/32	3/2	4 3/4	11/16	7/1	7	1 1/4	21/11	12 1/2
3/8	3/4	5	3/4	7/11	7 1/2			

Union Carbon Steel Twist Drills (Made in Canada)

Drills with $\frac{5}{8}$-inch (·647 exact) Parallel Shanks, No. 145

Shanks 2½ inches long

Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each
In.	Ins.		In.	Ins.		In.	Ins.		Ins.	Ins.		Ins.	Ins.	
1/8	4 7/8	2/1	13/32	6	4/-	11/16	6	6/3	31/32	6	10/-	1 1/4	6	13/9
9/64	5 1/8	2/4	7/16	6	4/2	23/32	6	6/8	1	6	10/5			
5/32	5 1/8	2/6	15/32	6	4/5	3/4	6	7/1	1 1/32	6	10/10	1 5/16	6	15/-
11/64	5 1/4	2/9	1/2	6	4/7	25/32	6	7/6	1 1/16	6	11/3			
3/16	5 1/4	2/11	17/32	6	4/10	13/16	6	7/11	1 3/32	6	11/8	1 3/8	6	16/3
13/64	5 3/8	3/2	9/16	6	5/-	27/32	6	8/4	1 1/8	6	12/1			
7/32	6	3/4	19/32	6	5/3	7/8	6	8/9	1 5/32	6	12/6	1 7/16	6	17/6
15/64	6	3/7	5/8	6	5/5	29/32	6	9/2	1 3/16	6	12/11			
1/4	6	3/9	21/32	6	5/10	15/16	6	9/7	1 7/32	6	13/4	1 1/2	6	18/9

Half-inch Parallel Shank Drills, Taper Length, No. 150

Shanks 2½ inches long

Diameter	Price	Diameter	Price	Diameter	Price	Diameter	Price	Diameter	Price	Diameter	Price
In.	Each	In.	Each	In.	Each	In.	Each	In.	Each	In.	Each
1/8	3/4	1/2	5/-	5/8	6/8	3/4	8/4	27/32	10/-	15/16	12/6
13/64	3/9	17/32	5/5	21/32	7/1	25/32	8/9	7/8	10/10	31/32	13/7
7/32	4/2	9/16	5/10	11/16	7/6	13/16	9/2	29/32	11/8	1	14/7
15/64	4/7	19/32	6/3	23/32	7/11						

Half-inch Parallel Shank Drills, Short Length, No. 155

Shanks 2¼ inches long

Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each	Diam.	Length	Price Each
In.	Ins.		In.	Ins.		In.	Ins.		Ins.	Ins.		Ins.	Ins.	
1/8	5 1/8	1/11	13/32	6	3/7	11/16	6	6/3	31/32	6	10/-	1 1/4	6	13/9
9/64	5 1/8	1/11	7/16	6	3/9	23/32	6	6/8	1	6	10/5			
5/32	5 1/4	2/1	15/32	6	4/-	3/4	6	7/1	1 1/32	6	10/10	1 5/16	6	15/-
11/64	6	2/4	1/2	6	4/2	25/32	6	7/6	1 1/16	6	11/3			
3/16	6	2/6	17/32	6	4/5	13/16	6	7/11	1 3/32	6	11/8	1 3/8	6	16/3
13/64	6	2/9	9/16	6	4/7	27/32	6	8/4	1 1/8	6	12/1			
7/32	6	2/11	19/32	6	5/-	7/8	6	8/9	1 5/32	6	12/6	1 7/16	6	17/6
15/64	6	3/2	5/8	6	5/5	29/32	6	9/2	1 3/16	6	12/11			
1/4	6	3/4	21/32	6	5/10	15/16	6	9/7	1 7/32	6	13/4	1 1/2	6	18/9

Centre Drills, No. 235

Diameter	Whole Length	Price Per Doz.	Diameter	Whole Length	Price Per Doz.	Diameter	Whole Length	Price Per Doz.
In.	Ins.		In.	Ins.		In.	Ins.	
1/32	1 1/8	6/3	9/64	1 1/4	7/9	15/64	1 1/2	12/6
5/64	1 1/8	6/6	5/32	1 1/2	7/11	1/4	1 1/2	13/7
3/16	1 1/4	6/8	11/64	1 1/2	8/4	17/64	1 1/2	14/7
7/64	1 1/4	6/11	3/16	1 1/2	9/5	9/32	1 1/2	15/10
1/8	1 1/4	7/1	13/64	1 1/2	10/5	19/64	1 1/2	16/8
9/64	1 1/4	7/4	7/32	1 1/2	11/6	5/16	1 1/2	18/2
5/32	1 1/4	7/6						

SPECIAL PATTERN DRILLS

STYLE No. 1

STYLE No. 2

Union Drills for Drilling Bakelite

(Made in Canada)

These Drills were developed after extensive experiment and will be found desirable for this class of work.
Style No. 1 is for drilling thin sections.
Style No. 2 is for the thicker sections and deep drilling. It is also satisfactory for drilling steel and cast iron.

Prices on application.

Union Drills for Brass (Made in Canada)

No. 119. CARBON STEEL **No. 519. HIGH SPEED STEEL**

Particularly adapted for deep hole drilling in screw machines. Flutes designed so that chips will not clog.

Prices on application.

H.S.S. Drills for Bakelite, Brass, Aluminium, Etc. (British Made)

No. EB10. For Ebonite and Bakelite, &c.

The exceptionally keen point and cutting edges enable this drill to be run at a peripheral speed of 300 to 400 ft. per min. without clogging or binding.

No. B 20. For Brass and Bronze

This is a slow spiral drill which will not face itself into the work or bend in the hole. The wide flutes permit the chips to flow out and the drill to be run at high speed.

No. AC30. For Aluminium, Copper, &c.

Designed for drilling soft metals. **Has quick Spiral,** will not bend in hole, and can be run at high speeds.

Sizes and Prices

Diam. In.	Straight Shank		Taper Shank		Diam. In.	Straight Shank		Taper Shank	
	Length Ins.	Price Each	Length Ins.	Price Each		Length Ins.	Price Each	Length Ins.	Price Each
3/64	1 3/4	1/1	—	—	9/32	4 1/4	2/9	6 1/4	6/3
1/16	2	1/2	4 1/2	5/3	19/64	4 1/4	3/-	6 3/8	6/3
5/64	2 1/4	1/3	4 1/2	5/3	5/16	4 1/2	3/3	6 3/8	6/3
3/32	2 1/2	1/4	4 3/4	5/3	21/64	4 3/4	3/6	6 1/2	6/6
7/64	2 1/2	1/4	5	5/3	11/32	4 3/4	3/9	6 1/2	6/6
1/8	2 3/4	1/5	5 1/8	5/6	23/64	5	4/-	6 3/4	6/6
9/64	3	1/6	5 1/4	5/6	3/8	5	4/3	6 3/4	6/6
5/32	3 1/4	1/7	5 3/8	5/6	25/64	5 1/4	4/6	7	7/-
11/64	3 1/4	1/8	5 1/2	5/6	13/32	5 1/4	4/9	7	7/-
3/16	3 1/2	1/9	5 3/4	5/9	27/64	5 1/2	5/-	7 1/4	7/6
13/64	3 3/4	1/11	5 7/8	5/9	7/16	5 1/2	5/-	7 1/4	7/6
7/32	3 3/4	2/-	6	5/9	29/64	5 3/4	5/3	7 1/2	8/-
15/64	4	2/3	6 1/8	5/9	15/32	5 3/4	5/6	7 1/2	8/-
1/4	4	2/5	6 1/8	6/-	31/64	6	5/9	7 3/4	8/6
17/64	4 1/4	2/7	6 1/4	6/3	1/2	6	6/-	7 3/4	8/6

High Speed Steel Taper Pin Drills (British Made)

Taper, 1/4 in. per foot.

With these Drills **two operations at once can be performed,** holes for taper pins can be drilled in the solid metal. No reaming is necessary. With a light feed these drills can be run at the same speeds as used for ordinary high-speed twist drills.

Size No.	Price Each Straight Shank	Price Each Taper Shank	Diam. at Small End In.	Diam. at Large End In.	Length of Flute in Ins.	No. of Morse Taper Shank	Size No.	Price Each Straight Shank	Price Each Taper Shank	Diam. at Small End In.	Diam. at Large End In.	Length of Flute in Ins.	No. of Morse Taper Shank
000	6/-	7/-	·101	·1322	1 1/2	1	5	12/-	13/-	·2287	·299	3 3/8	1
00	6/-	7/-	·112	·151	1 7/8	1	6	14/-	15/-	·2675	·356	4 1/4	1
0	6/6	7/6	·1245	·166	2	1	7	16/-	17/-	·3173	·424	5 1/8	1
1	7/-	8/-	·135	·182	2 1/4	1	8	18/-	19/6	·369	·507	6 5/8	1
2	8/-	9/-	·151	·203	2 1/2	1	9	24/-	25/6	·4472	·606	7 5/8	2
3	9/-	10/-	·1717	·229	2 3/4	1	10	30/-	32/-	·5543	·721	8	2
4	10/-	11/-	·1975	·260	3	1							

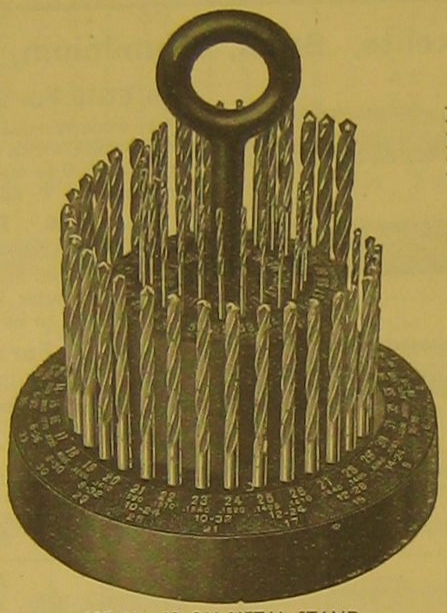
SETS OF DRILLS & DRILL STANDS

Union Sets of Carbon Steel Twist Drills (Made in Canada)

Sets of Straight Shank Drills only, without Stands

Set No.	**5.** Set of Jobbers' Drills, No. 115, $\frac{1}{16}$ to $\frac{1}{2}$ in. × 64ths ...	£2	12	1
,, ,,	**6.** Set of Jobbers' Drills, No. 115, $\frac{1}{16}$ to $\frac{1}{2}$ in. × 32nds	1	9	2
,, ,,	**7.** Set of Wire Gauge Drills, Nos. 1 to 60 and Jobbers' Drills, $\frac{1}{4}$ to $\frac{3}{8}$ in. × 32nds	2	15	3
,, ,,	**8.** Set of Steel Wire Drills, Nos. 1 to 60	2	5	3
,, ,,	**9.** Half-set, Wire Drills, alternate Nos. 1 to 59 ...	1	5	0
,, ,,	**10.** Jewellers' Set, 36 Drills, No. 30 ($\frac{1}{8}$-in.) to No. 65 Wire Gauge.	1	5	0
,, ,,	**15.** Set of Drills, A to Z ...	2	5	10

SET ON WOODEN BASE



SET No. 19 ON METAL STAND

Wooden Stands (Made in U.S.A.)

Without Drills

For Set No.	5	6	7	8	9	15
Price, each	10/5	10/5	10/5	10/5	10/5	10/5

Mahogany Case for Jewellers Set, No. 10 **14/7** each

Sets of Drills in Cases

No.	**13.** Bit Stock Drills in Cases, $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$ in.	0	17	9
,,	**14.** Bit Stock Drills in Cases, $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$ in. ...	0	11	3
,,	**22.** Set of Jobbers' Drills, $\frac{1}{16}$ to $\frac{3}{16}$ in. × 64ths in convenient pocket size package	0	6	8

Sets of Straight Shank Drills

Without Metal Stands

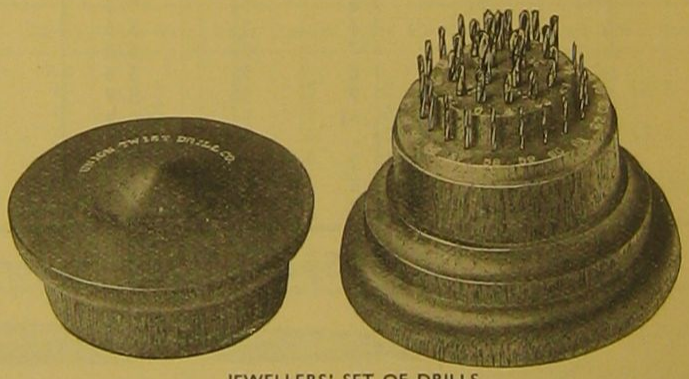
No.	**18.** Set of Jobbers' Drills, No. 115, $\frac{1}{16}$ to $\frac{1}{2}$ × 64ths...	£2	12	1
,,	**19.** Set of Steel Wire Drills, Nos. 1 to 60	2	5	3

Metal Stands (Made in U.S.A.)

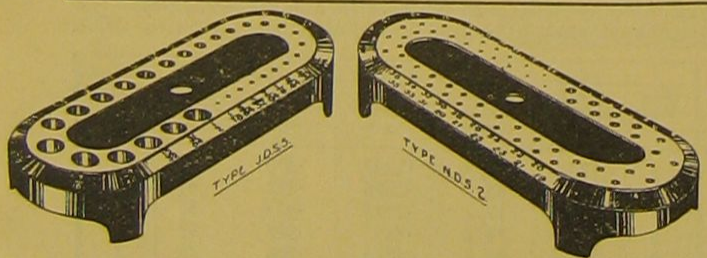
Without Drills

For Set No.	18	19
Price, each	14/7	14/7

BIT STOCKS SETS 13 AND 14



JEWELLERS' SET OF DRILLS



Aluminium Drill Stand

(British Made)

This is a cheap type of drill stand made from aluminium alloy. Size is $7\frac{1}{4} \times 2\frac{5}{8} \times 1\frac{1}{4}$ ins. **Holes are accurate in size** and all sizes are plainly marked in raised figures, at an angle, which enables them to be read at a glance.

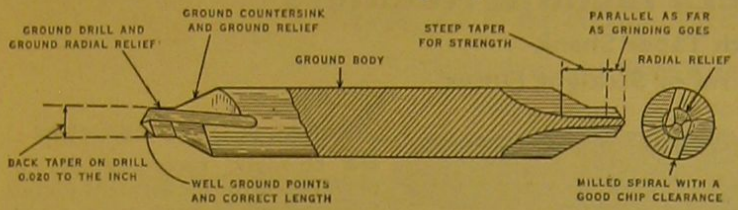
Prices

For holding 29 Twist Drills, sizes from $\frac{1}{16}$ to $\frac{1}{2}$ in. × 64ths ... ... **2/– each**
For Wire Drills, sizes Nos. 1 to 60 ... ... **2/–** ,,

COMBINED DRILLS AND COUNTERSINKS

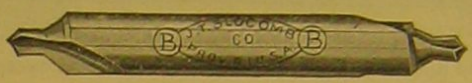
Slocomb Combined Drills and Countersinks (Made in U.S.A.)

In High-Speed Steel or Semi-High-Speed Steel


GROUND DRILL AND GROUND RADIAL RELIEF
GROUND COUNTERSINK AND GROUND RELIEF
GROUND BODY
STEEP TAPER FOR STRENGTH
PARALLEL AS FAR AS GRINDING GOES
RADIAL RELIEF
BACK TAPER ON DRILL 0.020 TO THE INCH
WELL GROUND POINTS AND CORRECT LENGTH
MILLED SPIRAL WITH A GOOD CHIP CLEARANCE

Accuracy, correctness of quality and manufacture backed by many years' experience in design have made Slocomb Combination Centre Drills the standard wherever best work is required.

REGULAR TYPE CENTRE DRILL



BELL TYPE CENTRE DRILL

Supplied in either high-speed steel or semi-high-speed steel. Below are given a few of the advantages obtained by their use.
They ensure every centre being drilled deep enough.
They will not chatter under any condition, for the pressure on point of drill, and drill generally, steadies the reamer.
They do in one operation what otherwise requires two.
They always ream countersink true with centre hole.
The reamer will not "run off" when centring a piece with an uneven end.

Regularly supplied for 60 deg. centres.
Combination Centre Drills should be run at a speed suitable for the drill regardless of the countersink.

This bell type is a safety combination centre drill, with a double angle countersink, designed to reduce the danger of chatter or eccentric work, caused by bruising the edge of the centred hole, and are desirable for use in production plants because of this safety feature.

They are also particularly adapted for the making of mandrels and arbors, or any work where an accurate and permanent centre is desired.

The outer angle serves two purposes, first it squares the stock at the end of the centred hole. Secondly, it provides a protecting shoulder to the centre bearing surface, thus ensuring an accurate bearing for the lathe centres.

Sizes are the same as the regular type.

Slocomb Regular Combination Centre Drills (Made in U.S.A.)

Size No.	Diam. of Body In.	Diam. of Drill In.	Length Overall Ins.	Price Per Dozen	
				Semi-High-Speed Steel	High-Speed Steel
A 1	1/8	3/64	1 1/4	£0 10 5	£1 13 4
C 2	13/64	1/16	1 7/8	0 12 6	1 13 4
D 1	15/64	5/64	2	0 13 7	1 13 4
E 1	1/10	3/32	2 1/8	0 14 7	1 13 4
E 2	1/10	1/8	2 1/8	0 14 7	1 13 4
F 1	7/16	3/32	2 3/4	0 18 9	2 10 0
F 2	7/16	1/8	2 3/4	0 18 9	2 10 0
J 1	1/2	7/32	3	1 4 0	3 15 0
J 2	1/2	9/32	3	1 4 0	3 15 0
M 1	5/8	7/32	3 1/4	1 17 6	5 0 0
M 2	5/8	9/32	3 1/4	1 17 6	5 0 0
N 1	3/4	1/4	3 1/2	2 9 0	6 13 4
N 2	3/4	5/16	3 1/2	2 9 0	6 13 4

BELL TYPE Combination Centre Drills, on application.

Slocomb Machinists' Sets of Combination Centre Drills (Made in U.S.A.)

This Centre Drill Set, illustrated, contained in a neat wooden case, comprises 7 Slocomb Centre Drills, one each A1, C2, D1, E1, E2, F1, and F2 Drills as listed above. These cover the range of sizes which our experience of so many years in this business has shown us to be the sizes most in demand.

The set can be supplied with Centre Drills of semi-high-speed steel or high-speed steel, and will do a large amount of hard and accurate work.

A tool chest equipment is not complete without a set of these.

Price (Semi-High-Speed Steel Drills) ... 11/8 per set
,, (High-Speed Steel Drills) £1 6 11 ,,

HIGH SPEED STEEL REAMERS

Containing 18 per cent. Tungsten

Super COMET

H.S.S. Parallel Machine Reamers

With Taper Shank

With Spiral or Straight Flutes

SUPER "COMET" MACHINE REAMER WITH SPIRAL FLUTES

SPIRAL FLUTED REAMERS are strongly recommended in preference to the Straight Fluted type and will be sent unless otherwise ordered.

Machine Reamers are supplied with a bevel lead except when ordered with taper lead or with square corner for bottoming.

SIZES			Price Each	Length O'all Ins.	Length of Flutes Ins.	Morse Taper Shank No.
Ins.	M/M	Decimal Equivalent				
—	3	·1181	6/6	3	1¼	Parallel Shanks ·0005 inch less than nominal diam.
1/8	—	·1250	6/-	3	1¼	
—	3·5	·1378	5/9	3½	1¼	
9/64	—	·1406	6/-	3	1¼	
5/32	—	·1562	5/9	3½	1¼	
—	4·0	·1575	5/6	3½	1¼	
11/64	—	·1719	5/9	3½	1¼	
—	4·5	·1772	5/6	3½	1¼	
3/16	—	·1875	5/6	3½	1¼	
—	—	·2031	6/-	4	1½	
7/32	—	·2187	6/6	4	1½	
15/64	—	·2344	6/6	4	1½	
—	3	·1181	10/-	4½	1¼	1
1/8	—	·1250	9/6	4½	1¼	1
—	3·5	·1378	9/3	4½	1¼	1
9/64	—	·1562	9/3	4½	1½	1
—	4·0	·1575	9/-	4½	1½	1
—	4·5	·1772	9/-	4½	1½	1
3/16	—	·1875	9/-	4½	1½	1
—	5·0	·1969	8/9	5½	2	1
—	5·5	·2165	8/9	5½	2	1
7/32	—	·2187	8/9	5½	2	1
—	6·0	·2362	8/9	5½	2	1
1/4	—	·2500	8/9	5½	2	1
—	6·5	·2559	8/9	5½	2	1
—	7·0	·2756	8/9	5½	2	1
9/32	—	·2812	8/9	5½	2	1
—	7·5	·2953	8/9	5½	2	1
5/16	—	·3125	8/9	5½	2	1
—	8·0	·3150	8/9	5½	2	1
—	8·5	·3346	9/-	5½	2½	1
11/32	—	·3437	9/-	5½	2½	1
—	9·0	·3543	9/-	5½	2½	1
—	9·5	·3740	9/-	5½	2½	1
3/8	—	·3750	9/-	5½	2½	1
—	10·0	·3937	9/6	5½	2½	1
13/32	—	·4062	9/6	5½	2½	1
—	10·5	·4134	9/6	5½	2½	1
—	11·0	·4330	9/6	5½	2½	1
7/16	—	·4375	9/6	5½	2½	1
—	11·5	·4528	9/9	6½	3	1
15/32	—	·4687	9/9	6½	3	1
—	12·0	·4724	9/9	6½	3	1
—	12·5	·4921	9/9	6½	3	1
1/2	—	·5000	9/9	6½	3	1
—	13·0	·5118	11/-	6½	3	1
17/32	—	·5312	11/-	6½	3	1
—	13·5	·5315	11/-	6½	3	1
—	14·0	·5512	11/-	6½	3	1
9/16	—	·5625	11/-	6½	3	1
—	14·5	·5709	15/6	7¾	3½	2
—	15·0	·5906	15/6	7¾	3½	2
19/32	—	·5937	15/6	7¾	3½	2
—	15·5	·6102	15/6	7¾	3½	2
5/8	—	·6250	15/6	7¾	3½	2
—	16·0	·6299	15/6	7¾	3½	2
—	16·5	·6496	17/-	7¾	3½	2
21/32	—	·6562	17/-	7¾	3½	2
—	17·0	·6693	17/-	7¾	3½	2
11/16	—	·6875	17/-	7¾	3½	2
—	17·5	·6890	17/-	7¾	3½	2
—	18·0	·7087	18/-	8¾	4	2
23/32	—	·7187	18/-	8¾	4	2
—	18·5	·7283	18/-	8¾	4	2
—	19·0	·7480	18/-	8¾	4	2
3/4	—	·7500	18/-	8¾	4	2
—	19·5	·7677	21/-	8¾	4	2
25/32	—	·7812	21/-	8¾	4	2
—	20·0	·7874	21/-	8¾	4	2
—	20·5	·8071	21/-	8¾	4	2
13/16	—	·8125	21/-	8¾	4	2
—	21·0	·8268	23/6	8¾	4½	2
27/32	—	·8437	23/6	8¾	4½	2
—	21·5	·8465	23/6	8¾	4½	2
—	22·0	·8661	23/6	8¾	4½	2
7/8	—	·8750	23/6	8¾	4½	2
—	22·5	·8858	29/-	9½	4½	3
—	23·0	·9055	29/-	9½	4½	3
29/32	—	·9062	29/-	9½	4½	3
—	23·5	·9252	29/-	9½	4½	3
15/16	—	·9375	29/-	9½	4½	3
—	24·0	·9449	31/6	10⅜	5	3
—	24·5	·9646	31/6	10⅜	5	3
31/32	—	·9687	31/6	10⅜	5	3
—	25·0	·9842	31/6	10⅜	5	3
1	—	1·0000	31/6	10⅜	5	3
—	25·5	1·0040	31/6	10⅜	5	3
—	26·0	1·0236	35/6	10⅜	5	3
1 1/32	—	1·0312	35/6	10⅜	5	3
—	26·5	1·0433	35/6	10⅜	5	3
1 1/16	—	1·0625	35/6	10⅜	5	3
—	27·0	1·0630	35/6	10⅜	5	3
—	27·5	1·0827	40/6	10⅞	5½	3
1 3/32	—	1·0937	40/6	10⅞	5½	3
—	28·0	1·1024	40/6	10⅞	5½	3
—	28·5	1·1220	40/6	10⅞	5½	3
1 1/8	—	1·1250	40/6	10⅞	5½	3
—	29·0	1·1417	46/-	10⅞	5½	3
1 5/32	—	1·1562	46/-	10⅞	5½	3
—	29·5	1·1614	46/-	10⅞	5½	3
—	30·0	1·1811	46/-	10⅞	5½	3
1 3/16	—	1·1875	46/-	10⅞	5½	3
—	30·5	1·2008	51/-	11⅜	6	3
1 7/32	—	1·2187	51/-	11⅜	6	3
—	31·0	1·2205	51/-	11⅜	6	3
—	31·5	1·2402	51/-	11⅜	6	3
1 1/4	—	1·2500	51/-	11⅜	6	3
—	32·0	1·2595	59/-	12½	6	4
—	32·5	1·2795	59/-	12½	6	4
1 9/32	—	1·2812	59/-	12½	6	4
—	33·0	1·2992	59/-	12½	6	4
1 5/16	—	1·3125	59/-	12½	6	4
—	33·5	1·3189	59/-	12½	6	4
—	34·0	1·3386	66/-	13	6½	4
1 11/32	—	1·3437	66/-	13	6½	4
—	34·5	1·3583	66/-	13	6½	4
1 3/8	—	1·3750	66/-	13	6½	4
—	35·0	1·3779	66/-	13	6½	4
—	35·5	1·3976	72/-	13	6½	4
1 13/32	—	1·4062	72/-	13	6½	4
—	36·0	1·4173	72/-	13	6½	4
—	36·5	1·4370	72/-	13	6½	4
1 7/16	—	1·4375	72/-	13	6½	4
—	37·0	1·4567	80/-	13½	7	4
1 15/32	—	1·4687	80/-	13½	7	4
—	37·5	1·4764	80/-	13½	7	4
—	38·0	1·4961	80/-	13½	7	4
1 1/2	—	1·5000	80/-	13½	7	4
—	38·5	1·5158	86/-	13½	7	4
1 17/32	—	1·5312	86/-	13½	7	4
—	39·0	1·5354	86/-	13½	7	4
—	39·5	1·5551	86/-	13½	7	4
1 9/16	—	1·5625	86/-	13½	7	4
—	40·0	1·5748	93/-	13½	7⅛	4
1 19/32	—	1·5937	93/-	13½	7⅛	4
—	40·5	1·5945	93/-	13½	7⅛	4
—	41·0	1·6142	93/-	13½	7⅛	4
1 5/8	—	1·6250	93/-	13½	7⅛	4
—	41·5	1·6339	101/-	13¾	7⅛	4
—	42·0	1·6536	101/-	13¾	7⅛	4
1 21/32	—	1·6562	101/-	13¾	7⅛	4
—	42·5	1·6733	101/-	13¾	7⅛	4
1 11/16	—	1·6875	101/-	13¾	7⅛	4
—	43·0	1·6929	101/-	13¾	7⅛	4
—	43·5	1·7126	111/-	13¾	7¼	4
1 23/32	—	1·7187	111/-	13¾	7¼	4
—	44·0	1·7323	111/-	13¾	7¼	4
1 3/4	—	1·7500	111/-	13⅞	7¼	4
—	44·5	1·7520	111/-	13⅞	7¼	4
—	45·0	1·7717	119/-	13⅞	7¼	4
1 25/32	—	1·7812	119/-	13⅞	7¼	4
—	45·5	1·7914	119/-	13⅞	7¼	4
—	46·0	1·8110	119/-	13⅞	7¼	4
1 13/16	—	1·8125	119/-	13⅞	7¼	4
—	46·5	1·8307	128/-	14	7⅜	4
1 27/32	—	1·8437	128/-	14	7⅜	4
—	47·0	1·8504	128/-	14	7⅜	4
—	47·5	1·8701	128/-	14	7⅜	4
1 7/8	—	1·8750	128/-	14	7⅜	4
—	48·0	1·8898	137/-	14	7⅜	4
1 29/32	—	1·9062	137/-	14	7⅜	4
—	48·5	1·9095	137/-	14	7⅜	4
—	49·0	1·9291	137/-	14	7⅜	4
1 15/16	—	1·9375	137/-	14	7⅜	4
—	49·5	1·9488	148/-	14½	7½	4
—	50·0	1·9685	148/-	14½	7½	4
1 31/32	—	1·9687	148/-	14½	7½	4
2	—	2·0000	148/-	14½	7½	4
2 1/16	—	2·1250	190/-	15½	7½	5
—	54·0	2·1260	190/-	15½	7½	5
—	57·0	2·2441	205/-	15½	7½	5
2 1/8	—	2·2500	205/-	15½	7½	5
—	60·0	2·3622	240/-	16	7½	5
2 3/16	—	2·3750	240/-	16	7½	5
2 1/4	—	2·5000	260/-	16	7½	5
—	64·0	2·5197	260/-	16½	7⅝	5
2 5/16	—	2·6250	311/-	16½	7⅝	5
—	67·0	2·6378	311/-	16½	7⅝	5
2 3/8	—	2·7500	335/-	16½	7⅝	5
—	70·0	2·7559	335/-	17	8	5
—	73·0	2·8740	381/-	17	8	5
2 7/16	—	2·8750	381/-	17	8	5
—	76·0	2·9921	408/-	17	8	5
3	—	3·0000	408/-	17	8	5

The prices shown above are for Standard Reamers to B.S.I. limits only. Reamers to finer limits are special and are charged extra.

Intermediate fractional sizes take the list price of the next larger fractional size.

Reamers of standard lengths, but with bastard diameters, are special and will be quoted on application.

HIGH SPEED STEEL REAMERS

Containing 18 per cent. Tungsten

Super COMET
H.S.S. Parallel Hand Reamers

With Straight Shank and Squared End
With Spiral or Straight Flutes

SUPER "COMET" HAND REAMER WITH SPIRAL FLUTES

SPIRAL FLUTED REAMERS
are strongly recommended in preference to the Straight Fluted type and will be sent unless otherwise ordered.

Cutting edges are unequally spaced. Shank diameters are ·001 inch less than respective cutting diameters.
Parallel Hand Reamers are supplied with a taper lead except where ordered without any lead for bottoming.

SIZES			Price Each	Length Overall Ins.	Length of Flutes Ins.
Ins.	M/M	Decimal Equivalent			
—	3·0	·1181	6/6	3	1½
1/8	—	·1250	6/-	3	1½
—	3·5	·1378	5/9	3	1½
9/64	—	·1562	5/9	3	1½
—	4·0	·1575	5/6	3	1½
—	4·5	·1772	5/6	3	1½
5/32	—	·1875	5/6	3	1½
—	5·0	·1969	6/6	4	2
—	5·5	·2165	6/6	4	2
11/64	—	·2187	6/6	4	2
—	6·0	·2362	6/6	4	2
1/4	—	·2500	6/6	4	2
—	6·5	·2559	6/9	4	2
—	7·0	·2756	6/9	4	2
9/32	—	·2812	6/9	4	2
—	7·5	·2953	6/9	4	2
5/16	—	·3125	6/9	4	2
—	8·0	·3150	6/9	4	2
—	8·5	·3346	7/6	5	2½
11/32	—	·3437	7/6	5	2½
—	9·0	·3543	7/6	5	2½
—	9·5	·3740	7/6	5	2½
3/8	—	·3750	7/6	5	2½
—	10·0	·3937	8/3	5	2½
13/32	—	·4062	8/3	5	2½
—	10·5	·4134	8/3	5	2½
—	11·0	·4330	8/3	5	2½
7/16	—	·4375	8/3	5	2½
—	11·5	·4528	10/-	6	3
15/32	—	·4687	10/-	6	3
—	12·0	·4724	10/-	6	3
—	12·5	·4921	10/-	6	3
1/2	—	·5000	10/-	6	3
—	13·0	·5118	11/-	6	3
17/32	—	·5312	11/-	6	3
—	13·5	·5315	11/-	6	3
—	14·0	·5512	11/-	6	3
9/16	—	·5625	11/-	6	3
—	14·5	·5709	13/6	7	3½
—	15·0	·5906	13/6	7	3½
19/32	—	·5937	13/6	7	3½
—	15·5	·6102	13/6	7	3½
5/8	—	·6250	13/6	7	3½
—	16·0	·6299	13/6	7	3½
—	16·5	·6496	15/-	7	3½
21/32	—	·6562	15/-	7	3½
—	17·0	·6693	15/-	7	3½
11/16	—	·6875	15/-	7	3½
—	17·5	·6890	15/-	7	3½
—	18·0	·7087	17/6	8	4
23/32	—	·7187	17/6	8	4
—	18·5	·7283	17/6	8	4
—	19·0	·7480	17/6	8	4
3/4	—	·7500	17/6	8	4
—	19·5	·7677	19/6	8	4
25/32	—	·7812	19/6	8	4
—	20·0	·7874	19/6	8	4
—	20·5	·8071	19/6	8	4

SIZES			Price Each	Length Overall Ins.	Length of Flutes Ins.
Ins.	M/M	Decimal Equivalent			
13/16	—	·8125	19/6	8	4
—	21·0	·8268	22/6	9	4½
27/32	—	·8437	22/6	9	4½
—	21·5	·8465	22/6	9	4½
—	22·0	·8661	22/6	9	4½
7/8	—	·8750	22/6	9	4½
—	22·5	·8858	26/-	9	4½
—	23·0	·9055	26/-	9	4½
29/32	—	·9062	26/-	9	4½
—	23·5	·9252	26/-	9	4½
15/16	—	·9375	26/-	9	4½
—	24·0	·9449	30/6	10	5
—	24·5	·9646	30/6	10	5
31/32	—	·9687	30/6	10	5
—	25·0	·9842	30/6	10	5
1	—	1·0000	30/6	10	5
—	25·5	1·0040	30/6	10	5
—	26·0	1·0236	35/-	10	5
1 1/32	—	1·0312	35/-	10	5
—	26·5	1·0433	35/-	10	5
1 1/16	—	1·0625	35/-	10	5
—	27·0	1·0630	35/-	10	5
—	27·5	1·0827	40/-	11	5½
1 3/32	—	1·0937	40/-	11	5½
—	28·0	1·1024	40/-	11	5½
—	28·5	1·1220	40/-	11	5½
1 1/8	—	1·1250	40/-	11	5½
—	29·0	1·1417	44/6	11	5½
1 5/32	—	1·1562	44/6	11	5½
—	29·5	1·1614	44/6	11	5½
—	30·0	1·1811	44/6	11	5½
1 3/16	—	1·1875	44/6	11	5½
—	30·5	1·2008	50/-	12	6
1 7/32	—	1·2187	50/-	12	6
—	31·0	1·2205	50/-	12	6
—	31·5	1·2402	50/-	12	6
1 1/4	—	1·2500	50/-	12	6
—	32·0	1·2595	56/-	12	6
—	32·5	1·2795	56/-	12	6
1 9/32	—	1·2812	56/-	12	6
—	33·0	1·2992	56/-	12	6
1 5/16	—	1·3125	56/-	12	6
—	33·5	1·3189	64/-	13	6½
—	34·0	1·3386	64/-	13	6½
1 11/32	—	1·3437	64/-	13	6½
—	34·5	1·3583	64/-	13	6½
1 3/8	—	1·3750	64/-	13	6½
—	35·0	1·3779	64/-	13	6½
—	35·5	1·3976	70/-	13	6½
1 13/32	—	1·4062	70/-	13	6½
—	36·0	1·4173	70/-	13	6½
—	36·5	1·4370	70/-	13	6½
1 7/16	—	1·4375	70/-	13	6½
—	37·0	1·4567	77/-	13½	6½
1 15/32	—	1·4687	77/-	13½	6½
—	37·5	1·4764	77/-	13½	6½
—	38·0	1·4961	77/-	13½	6½
1½	—	1·5000	77/-	13½	6½

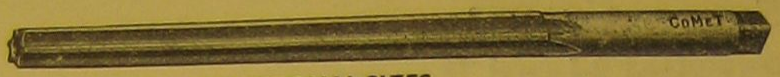
SIZES			Price Each	Length Overall Ins.	Length of Flutes Ins.
Ins.	M/M	Decimal Equivalent			
—	38·5	1·5158	83/-	13½	6½
1 17/32	—	1·5312	83/-	13½	6½
—	39·0	1·5354	83/-	13½	6½
—	39·5	1·5551	83/-	13½	6½
1 9/16	—	1·5625	83/-	13½	6½
—	40·0	1·5748	90/-	13½	6½
1 19/32	—	1·5937	90/-	13½	6½
—	40·5	1·5945	90/-	13½	6½
—	41·0	1·6142	90/-	13½	6½
1 5/8	—	1·6250	90/-	13½	6½
—	41·5	1·6339	98/-	13½	6½
—	42·0	1·6536	98/-	13½	6½
1 21/32	—	1·6562	98/-	13½	6½
—	42·5	1·6733	98/-	13½	6½
1 11/16	—	1·6875	98/-	13½	6½
—	43·0	1·6929	98/-	13½	6½
—	43·5	1·7126	107/-	13½	6½
1 23/32	—	1·7187	107/-	13½	6½
—	44·0	1·7323	107/-	13½	6½
1¾	—	1·7500	107/-	13½	6½
—	44·5	1·7520	107/-	13½	6½
—	45·0	1·7717	116/-	13½	6½
1 25/32	—	1·7812	116/-	13½	6½
—	45·5	1·7914	116/-	13½	6½
—	46·0	1·8110	116/-	13½	6½
1 13/16	—	1·8125	116/-	13½	6½
—	46·5	1·8307	125/-	14	7
1 27/32	—	1·8437	125/-	14	7
—	47·0	1·8504	125/-	14	7
—	47·5	1·8701	125/-	14	7
1⅞	—	1·8750	125/-	14	7
—	48·0	1·8898	135/-	14	7
1 29/32	—	1·9062	135/-	14	7
—	48·5	1·9095	135/-	14	7
—	49·0	1·9291	135/-	14	7
1 15/16	—	1·9375	135/-	14	7
—	49·5	1·9488	145/-	14½	7⅛
—	50·0	1·9685	145/-	14½	7⅛
1 31/32	—	1·9687	145/-	14½	7⅛
2	—	2·0000	145/-	14½	7⅛
2 1/16	—	2·1250	178/-	14½	7¼
—	54·0	2·1260	178/-	14½	7¼
—	57·0	2·2441	195/-	14½	7⅜
2 1/16	—	2·2500	195/-	14½	7⅜
—	60·0	2·3622	225/-	15	7½
2 3/8	—	2·3750	225/-	15	7½
2 7/16	—	2·5000	248/-	15½	7⅝
—	64·0	2·5197	248/-	15½	7⅝
2½	—	2·6250	292/-	15½	7⅞
—	67·0	2·6378	292/-	15½	7⅞
2 5/8	—	2·7500	320/-	15½	7⅞
—	70·0	2·7559	320/-	15½	7⅞
—	73·0	2·8740	358/-	16	8
2 7/8	—	2·8750	358/-	16	8
—	76·0	2·9921	390/-	16½	8⅛
3	—	3·0000	390/-	16½	8⅛

The prices shown above are for Standard Reamers to B.S.I. limits only. Reamers to finer limits are special and are charged extra.
Intermediate fractional sizes take the list price of the next larger fractional size.
Reamers of standard lengths, but with bastard diameters, are special, and will be quoted on application.

HIGH SPEED STEEL REAMERS

Containing 18 per cent. Tungsten

Super COMET H.S.S. Taper Pin Reamers With Straight Shanks



With Straight Flutes.
Taper ¼ inch per foot (1 in 48)

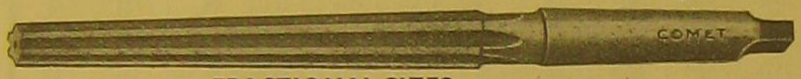
FRACTIONAL SIZES

Nominal Diameter	Price	Diameter of Small End	Diameter of Large End	Length of Cutting Edges	Length Overall
Inches	Each	Inches	Inches	Inches	Inches
	s. d.				
1/16	8 6	·047	·063	3/4	1 3/8
5/64	8 0	·059	·078	7/8	1 5/16
3/32	7 9	·070	·094	1 1/8	1 3/4
7/64	7 3	·082	·109	1 1/16	1 7/8
1/8	6 6	·094	·125	1 1/2	2 1/4
9/64	6 3	·117	·156	1 5/8	2 3/8
5/32	6 0	·141	·188	2 1/4	3
11/64	6 6	·164	·219	2 3/8	3 3/8
3/16	7 0	·188	·250	3	4
13/64	7 9	·212	·281	3 3/8	4 3/8
7/32	8 6	·234	·313	3 3/4	4 3/4
15/64	9 6	·258	·344	4 1/8	5 1/8
1/4	10 6	·281	·375	4 1/2	5 1/2
17/64	12 0	·328	·438	5 1/4	6 1/2
9/32	13 6	·375	·500	6	7 1/4
19/64	18 0	·422	·563	6 3/4	8
5/16	21 6	·469	·625	7 1/2	8 3/4

NUMBER SIZES

Nominal Diameter	Price	Diameter of Small End	Diameter of Large End	Length of Cutting Edges	Length Overall
Number	Each	Inches	Inches	Inches	Inches
	s. d.				
000000	8 0	·0606	·0814	1	2
00000	7 6	·075	·0984	1 1/8	2 1/8
0000	7 0	·088	·114	1 1/4	2 1/4
000	6 6	·101	·1322	1 1/2	2 1/2
00	6 3	·112	·151	1 7/8	2 5/8
0	6 0	·1245	·166	2	2 3/4
1	6 0	·135	·182	2 1/4	3
2	6 6	·151	·203	2 1/2	3 1/8
3	7 0	·1717	·229	2 3/4	3 3/4
4	7 9	·1975	·260	3	4
5	8 6	·2287	·299	3 1/8	4 3/8
6	10 6	·2675	·356	4 1/4	5 1/4
7	12 0	·3173	·424	5 1/8	6 3/8
8	16 6	·369	·507	6 1/8	7 3/8
9	20 6	·4472	·606	7 1/8	8 3/4
10	25 0	·5543	·721	8	9 1/4
11	35 0	·706	·878	8 1/4	11 1/4
12	52 0	·842	1·050	10	13 3/8

With Morse Taper Shanks



With Straight Flutes.
Taper ¼ inch per foot (1 in 48)

FRACTIONAL SIZES

Nominal Diameter	Price	Diameter of Small End	Diameter of Large End	Length of Cutting Edges	Length Overall	Morse Taper Shank
Inches	Each	Inches	Inches	Inches	Inches	No.
	s. d.					
1/16	12 0	·141	·188	2 1/4	5 3/8	1
7/32	10 0	·164	·219	2 3/8	5 3/4	1
1/4	10 0	·188	·250	3	6 1/8	1
9/32	12 0	·212	·281	3 3/8	6 1/2	1
5/16	12 3	·234	·313	3 3/4	6 7/8	1
11/32	13 0	·258	·344	4 1/8	7 1/4	1
3/8	14 0	·281	·375	4 1/2	7 5/8	1
7/16	16 0	·328	·438	5 1/4	8 3/8	1
1/2	18 0	·375	·500	6	9 1/8	1
9/16	20 6	·422	·563	6 3/4	10 7/16	2
5/8	26 6	·469	·625	7 1/2	11 5/16	2

NUMBER SIZES

Nominal Diameter	Price	Diameter of Small End	Diameter of Large End	Length of Cutting Edges	Length Overall	Morse Taper Shank
Number	Each	Inches	Inches	Inches	Inches	No.
	s. d.					
1	12 0	·135	·182	2 1/4	5 3/8	1
2	11 0	·151	·203	2 1/2	5 5/8	1
3	10 0	·1717	·229	2 3/8	5 7/8	1
4	11 0	·1975	·260	3	6 1/8	1
5	12 0	·2287	·299	3 3/8	6 1/2	1
6	13 6	·2675	·356	4 1/4	7 3/8	1
7	15 0	·3173	·424	5 1/8	8 1/4	1
8	20 0	·369	·507	6 3/8	9 3/4	1
9	23 0	·4472	·606	7 3/8	10 3/4	1
10	30 3	·5543	·721	8	11 7/8	2
11	38 0	·706	·878	8 1/4	12 1/16	2
12	57 6	·842	1·050	10	14 3/8	3

Super COMET H.S.S. Taper Bridge Reamers (Machine)

With Spiral or Straight Flutes.
Spiral Fluted Reamers are recommended and will be sent unless otherwise ordered.

Diam. Inches	Price Each	Length Overall Inches	Total Length of Cutting Edges Inches	Morse Taper
1/4	12 0	6 3/8	3 3/8	No. 1
5/16	12 0	6 3/4	3 3/4	
3/8	12 0	7	4	
7/16	15 6	8 1/8	4 3/8	
1/2	17 6	9 1/8	5 3/8	
9/16	18 0	9 1/8	5 3/8	No. 2
5/8	22 0	9 7/8	6 1/8	
11/16	24 6	9 7/8	7 1/8	
11/17	29 0	11 3/4	7 1/8	No. 3

Diam. Inches	Price Each	Length Overall Inches	Total Length of Cutting Edges Inches	Morse Taper
3/4	30 0	12	7 3/8	No. 3
13/16	31 0	12	7 3/8	
7/8	33 0	12	7 3/8	
15/16	35 0	12	7 3/8	
1	37 6	12	7 3/8	
1 1/16	40 0	12		
1 1/8	43 0	12	7 3/8	
1 3/16	46 0	12	7 3/8	
1 1/4	50 0	12	7 3/8	

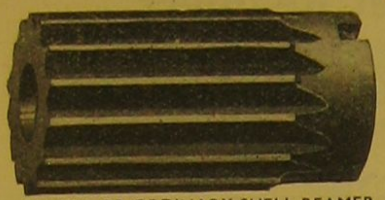
Diam. Inches	Price Each	Length Overall Inches	Total Length of Cutting Edges Inches	Morse Taper
1 1/4	54 0	13	7 3/8	No. 4
1 5/16	56 6	13	7 3/8	
1 3/8	61 0	13	7 3/8	
1 7/16	65 6	13	7 3/8	
1 1/2	70 0	13	7 3/8	
1 9/16	85 0	14	8 3/8	
1 5/8	92 6	14	8 3/8	
1 1/16	100 0	14	8 3/8	
1 3/4	110 0	14	8 3/8	

All sizes shown above are to dimensions and tolerances recommended by The British Standards Institution.

HIGH SPEED STEEL REAMERS

Containing 18 per cent. Tungsten

Super COMET H.S.S. Shell Reamers



FLUTED OR ORDINARY SHELL REAMER

Fluted or Rose Type,

with Taper or Parallel Holes and Spiral or Straight Flutes.

Reamers with Spiral Flutes and Taper Holes are recommended and will be sent unless otherwise ordered.
Fluted, ordinary, Shell reamers have parallel cutting edges, the land being relieved on the periphery, and a relieved bevel lead.
Rose Shell Reamers have the parallel teeth left so that they form a bearing and are not relieved on the periphery. A bevelled lead is provided with relieved cutting edges.
Taper of hole is approximately $\frac{1}{8}$ in. per foot on diameter.

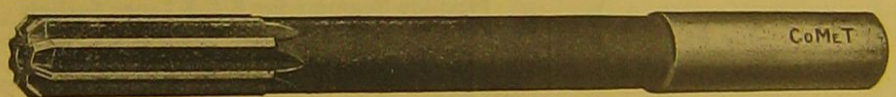
Diam. In.	Price Each	Length Overall Ins.	Diam. of Large End of Taper Hole In.	Diam. In.	Price Each	Length Overall Ins.	Diam. of Large End of Taper Hole In.	Diam. In.	Price Each	Length Overall Ins.	Diam. of Large End of Taper Hole In.
½	£1 4 0	2	¼	1 3/8	£2 4 0	3	¾	2 1/4	£4 6 0	3¾	1¼
9/16	1 5 0	2	¼	1 7/16	2 6 0	3	¾	2 5/16	4 11 0	3¾	1¼
⅝	1 6 0	2¼	⅜	1½	2 8 0	3	¾	2⅜	4 16 0	3¾	1¼
11/16	1 7 0	2¼	⅜	1 9/16	2 10 6	3	¾	2 7/16	5 1 0	3¾	1¼
¾	1 8 0	2½	½	1⅝	2 13 0	3	¾	2½	5 6 0	3¾	1¼
13/16	1 9 0	2½	½	1 11/16	2 15 6	3½	1	2 9/16	5 12 0	4	1½
⅞	1 10 0	2½	½	1¾	2 18 0	3½	1	2⅝	5 18 0	4	1½
15/16	1 11 0	2½	½	1 13/16	3 1 0	3½	1	2 11/16	6 4 0	4	1½
1	1 12 0	2¾	⅝	1⅞	3 4 0	3½	1	2¾	6 10 0	4	1½
1 1/16	1 14 0	2¾	⅝	1 15/16	3 7 0	3½	1	2 13/16	6 17 0	4	1½
1⅛	1 16 0	2¾	⅝	2	3 10 0	3½	1	2⅞	7 4 0	4	1½
1 3/16	1 18 0	2¾	⅝	2 1/16	3 14 0	3¾	1¼	2 15/16	7 11 0	4	1½
1¼	2 0 0	2¾	⅝	2⅛	3 18 0	3¾	1¼	3	7 18 0	4	1½
1 5/16	2 2 0	3	¾	2 3/16	4 2 0	3¾	1¼				

Arbors (Union) for use with "Comet" Shell Reamers can be supplied. For Prices see page 79

Super COMET H.S.S. Fluted and Rose Chucking Reamers

Fluted Reamer with Taper Shank

With Straight or Taper Shanks

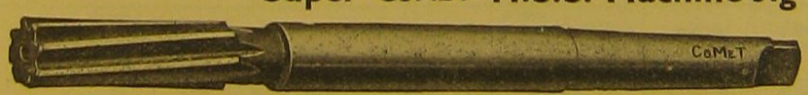


Rose Reamer with Straight Shank

These reamers are for use in a lathe tailstock or turret and have short cutting edges with bevel lead and long body clearance between shank and cutting edges

Diam. Ins.	Price Each		Length overall Ins.		Length of Flutes Ins.	Morse Taper	Diam. Ins.	Price Each		Length overall Ins.		Length of Flutes Ins.	Morse Taper
	Straight Shank	Taper Shank	Straight Shank	Taper Shank				Straight Shank	Taper Shank	Straight Shank	Taper Shank		
⅛	0 7 0	—	3½	—	—	No. 1	1½	£1 17 6	£2 1 3	10	11	2⅞	No. 3
5/32	0 8 3	—	4½	—	—		1 7/8	2 1 9	2 6 9	10	11	2⅞	
¼	0 7 6	0 9 6	5	6	1¼		1¾	2 5 0	2 14 6	10½	11½	3	
5/16	0 8 0	0 9 6	5	6	1¼								
⅜	0 9 3	0 10 0	6½	7	1½		1 7/8	2 11 0	2 17 6	10½	11½	3	
7/16	0 10 0	0 10 6	6½	7	1½		1⅞	2 17 0	3 3 0	10½	12	3⅛	
½	0 11 3	0 12 0	7½	8	1½		1 15/16	3 1 0	3 9 0	10½	12	3⅛	
9/16	0 12 6	0 12 9	7½	8	1¾		1⅞	3 7 0	3 18 0	10½	12¼	3⅛	
⅝	0 15 6	0 16 6	8½	9	2	No. 2	1 15/16	3 13 0	4 4 0	10½	12¼	3⅛	No. 4
11/16	0 17 0	0 18 0	8½	9	2		1⅞	4 3 6	4 14 0	11½	13	3⅜	
¾	1 0 0	1 0 6	8½	9½	2¼		1 15/16	4 12 0	5 4 0	11½	13	3⅜	
13/16	1 2 0	1 3 0	8½	9½	2¼		1⅞	4 18 0	5 14 0	11½	13	3⅜	
⅞	1 4 0	1 6 9	8½	10	2½		1 15/16	5 5 0	6 4 0	11½	13	3⅜	
15/16	1 6 0	1 10 0	8½	10	2½	No. 3	1⅞	5 17 0	6 16 0	12½	13½	3⅜	
1	1 10 6	1 14 3	9½	10½	2½		1 15/16	6 9 0	7 8 0	12½	13½	3⅜	
1 1/16	1 14 3	1 15 9	9½	10½	2½		2	7 5 0	8 4 0	12½	13½	3⅜	

Super COMET H.S.S. Machine Jig Reamers



With Morse Taper Shanks.

Diam. Ins.	Price Each	Length overall Ins.	Length of Flutes Ins.	Morse Taper	Diam. Ins.	Price Each	Length overall Ins.	Length of Flutes Ins.	Morse Taper	Diam. Ins.	Price Each	Length overall Ins.	Length of Flutes Ins.	Morse Taper
⅛	£0 10 6	6	1½	No. 1	7/32	£1 9 6	10	2½	No. 2	1 1/16	£4 5 9	12½	3½	No. 4
5/32	0 10 6	6	1½		9/32	1 13 0	10	2½		1⅛	4 12 6	12½	3½	
¼	0 11 0	7	1½		5/16	1 17 9	10½	2½	No. 3	1 3/16	5 3 6	13	3⅝	
5/16	0 11 6	7	1½		11/32	1 19 3	10½	2½		1¼	5 14 6	13	3⅝	
⅜	0 13 3	8	1½		3/8	2 5 3	11	2½		1 5/16	6 5 6	13	3⅝	
7/16	0 14 0	8	1½		13/32	2 11 6	11	2½		1⅜	6 16 6	13	3⅝	
½	0 18 0	9	2		7/16	3 0 0	11½	3		1 7/16	7 9 6	13½	3⅝	
9/16	0 19 9	9	2	No. 2	15/32	3 3 3	11½	3	No. 4	1½	8 2 9	13½	3⅝	
⅝	1 2 6	9½	2¼		½	3 9 3	12	3⅛		2	9 0 6	13½	3⅝	
11/16	1 5 3	9½	2¼		17/32	3 16 0	12	3⅛						

Intermediate fractional sizes of all these Reamers take the List Price of the next larger fractional size.
All sizes shown above are to dimensions and tolerances recommended by the British Standards Institution.

HIGH SPEED STEEL REAMERS

Containing 18 per cent. Tungsten

Super COMET H.S.S. Taper Socket Reamers

Hand Reamers with Straight Flutes and **Machine Reamers** with Straight Flutes } **for Morse Taper Sockets.**

Hand Reamers for Morse Taper Sockets

For M.T. Socket No.	Price Each Roughing	Price Each Finishing	Max. and Min. Diameters Ins.	Length overall Ins.	Length of Cutting Edges Ins.
0	£0 14 6	£0 9 6	·367— ·2499	3¼	2¼
1	0 19 3	0 13 3	·492— ·3673	3¾	2¾
2	1 7 3	0 19 3	·7195— ·5697	4½	3
3	1 18 0	1 10 0	·963— ·7748	5½	3¾
4	2 17 0	2 8 0	1·257—1·0168	6½	4⅜
5	5 6 0	4 10 0	1·787—1·4713	8½	6
6	9 2 0	8 1 0	2·543—2·1129	11½	8¼

Machine Reamers for Morse Taper Sockets

For M.T. Socket No.	Price Each Roughing	Price Each Finishing	Max. and Min. Diameters Ins.	Length overall Ins.	Length of Cutting Edges Ins.
0	£0 15 9	£0 10 9	·367— ·2499	5⅜	2¼
1	1 1 0	0 15 0	·492— ·3673	5¾	2¾
2	1 11 0	1 3 0	·7195— ·5697	6¼	3
3	2 4 0	1 1 0	·963— ·7748	8⅜	3¾
4	3 7 0	2 1 0	1·257—1·0168	10¼	4⅜
5	6 11 0	5 15 0	1·787—1·4713	12⅛	6
6	13 13 0	12 12 0	2·543—2·1129	17⅜	8¼

Hand Reamers with Straight Flutes and **Machine Reamers** with Straight Flutes } **for B & S Taper Sockets.**

Hand Reamers for B & S Taper Sockets

For B & S Socket No.	Price Each Roughing	Price Each Finishing	Length overall Ins.	Length of Cutting Edges Ins.	Max. and Min. Diameters Ins.	For B & S Socket No.	Price Each Roughing	Price Each Finishing	Length overall Ins.	Length of Cutting Edges Ins.	Max. and Min. Diameters Ins.	For B & S Socket No.	Price Each Roughing	Price Each Finishing	Length overall Ins.	Length of Cutting Edges Ins.	Max. and Min. Diameters Ins.
1	£0 13 3	£0 8 0	2½	1⅜	·2555—·198	7	£1 12 0	£1 4 0	5½	3¾	·754— ·598	13	£8 12 0	£7 12 0	12⅛	9⅛	2·128—1·748
2	0 13 9	0 8 6	2¾	1⅝	·3155—·248	8	2 4 0	1 16 0	6 7/16	4 7/16	·9275— ·748	14	11 12 0	10 8 0	12¼	9¼	2·4095—1·998
3	0 14 6	0 9 6	3	2	·3935—·310	9	2 17 0	2 8 0	7⅜	5⅛	1·1115— ·898	15	14 12 0	13 5 0	13½	10⅜	2·680—2·248
4	0 19 3	0 13 0	3¼	2¼	·4415—·348	10	3 14 0	3 4 0	9½	6⅜	1·328—1·043	16	18 12 0	16 17 0	13⅜	10¼	2·951—2·498
5	1 2 9	0 16 0	4	2¾	·5625—·448	11	5 4 0	4 11 0	10½	7¼	1·571—1·248	17	20 15 0	18 15 0	14	11⅜	3·222—2·748
6	1 7 6	1 0 0	4½	3	·623— ·498	12	6 16 0	6 0 0	11⅝	8⅜	1·847—1·498	18	23 0 0	22 9 0	14½	11⅜	3·493—2·998

Machine Reamers for B & S Taper Sockets

No. of Taper	Price Each Roughing	Price Each Finishing	Length overall Ins.	Length of Cutting Edges Ins.	Max. and Min. Diameters Ins.	No. of M.T. Shank	No. of Taper	Price Each Roughing	Price Each Finishing	Length overall Ins.	Length of Cutting Edges Ins.	Max. and Min. Diameters Ins.	No. of M.T. Shank
1	£0 14 6	£0 9 6	4¼	1⅜	·2555—·198	0	10	£3 19 0	£3 10 0	12¼	6⅜	1·328—1·043	4
2	0 15 0	0 10 0	4¼	1⅜	·3155—·248	0	11	6 3 0	5 10 0	13⅓	7⅛	1·571—1·248	4
3	0 15 9	0 10 9	5	2	·3935—·310	0	12	7 16 0	7 0 0	15½	8⅜	1·847—1·498	5
4	1 1 0	0 15 0	5½	2¼	·4415—·348	1	13	12 5 0	11 5 0	18½	9⅛	2·128—1·748	6
5	1 4 9	0 18 0	6	2¾	·5625—·448	1	14	17 4 0	16 0 0	19¼	9⅞	2·4095—1·998	6
6	1 8 6	1 1 0	6½	3	·623—·498	2	15	21 7 0	20 0 0	19½	10⅜	2·680—2·248	6
7	1 13 0	1 5 0	7½	3½	·754—·598	2	16	22 2 0	25 7 0	20½	10⅞	2·951—2·498	6
8	2 6 0	1 18 0	9	4 7/16	·9275—·748	3	17	32 5 0	30 5 0	20½	11⅛	3·222—2·748	6
9	3 3 0	2 14 0	10½	5⅛	1·1115—·898	4	18	36 7 0	34 2 0	21¼	11⅞	3·493—2·998	6

All sizes shown above are to dimensions and tolerances recommended by the British Standards Institution.

Three-Groove Chucking Reamers (British Made)

Three cutting lips, which are again divided by three top grooves give this Reamer six points of contact or bearing. However irregular the form of hole the tool will, therefore cut its way concentric with the centre of machine.

For cored holes the Reamer rapidly removes as large an amount of stock as the cutting edges will admit. All stock sizes are $\frac{1}{64}$th under Standard for Reamer finish.

Diam. In.	Price Each	Length Ins.	Length of Flutes Ins.	Morse Taper Shank.	Diam. In.	Price Each	Length Ins.	Length of Flutes Ins.	Morse Taper Shank.	Diam. In.	Price Each	Length Ins.	Length of Flutes Ins.	Morse Taper Shank.
¼	£0 6 0	6½	2 1/16	No. 1	11/16	£0 17 0	9⅞	6	No. 2	1 1/16	£4 4 0	15¼	9⅛	No. 4
9/32	0 6 3	6½	3 1/16		11/16	0 18 0	10	6⅛		1⅛	4 12 0	15½	9¼	
5/16	0 6 3	6⅝	3 1/16		11/16	0 19 0	10¼	6⅛		1 1/16	4 18 0	15¾	10	
11/32	0 6 6	6½	3 1/16		¾	1 0 6	10⅜	6⅛		1¼	5 4 0	16	10⅛	
⅜	0 6 6	6¾	3 1/16		13/16	1 2 0	10⅜	6⅛		1 3/16	5 12 0	16¼	10⅛	
13/32	0 7 0	7	3 1/16		13/16	1 3 6	10⅜	6⅛		1⅜	6 0 0	16⅜	10⅛	
7/16	0 7 6	7¼	4 7/16		13/16	1 5 0	10⅝	6¼		1 7/16	6 10 0	16½	10⅛	
15/32	0 8 0	7⅝	4 7/16		1	1 6 6	11	6⅛	No. 3	2	7 0 0	16½	10⅛	
½	0 8 6	7¾	4 7/16		1 1/16	1 11 0	11¼	6⅛						
17/32	0 9 0	8	4 7/16		1⅛	1 15 0	11¾	7⅛		2⅛	8 5 0	17	10	No. 5
9/16	0 12 0	8¼	4⅜		1 3/16	1 19 0	12	7⅛		2¼	9 5 0	17½	10⅛	
19/32	0 12 6	8½	4⅜		1¼	2 4 0	12½	7⅛		2⅜	10 10 0	18	10⅛	
⅝	0 13 0	8¾	4⅜							2½	12 0 0	19	11⅛	
21/32	0 13 6	9	5⅛		1 1/16	2 15 0	14¼	8⅛	No. 4	2⅝	13 15 0	19½	12	
11/16	0 14 0	9¼	5⅛		1⅛	3 2 0	14½	8⅛		2¾	15 15 0	20⅛	13	
23/32	0 15 0	9½	5⅛		1 3/16	3 8 0	14¾	9		2⅞	17 15 0	21	13½	
¾	0 16 0	9¾	5⅛		1¼	3 16 0	15	9¼		3	20 0 0	22	14⅛	

HAND AND MACHINE CARBON STEEL REAMERS

Union Carbon Steel Solid Reamers (Made in Canada)

With Straight Shank and Squared End, No. 800.

Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.
1/8	4/2	3	1 1/2	1/2	7/11	6	3	29/32	14/2	10	5	1 11/32	23/4	12 1/2	6 1/4
5/32	5/-	3 1/4	1 5/8	17/32	8/4	6 1/4	3 1/8	15/16	14/2	10 1/4	5 1/8	1 3/8	23/4	12 5/8	6 5/16
3/16	5/-	3 1/2	1 3/4	9/16	8/4	6 1/2	3 1/4	31/32	15/5	10 5/8	5 5/16	1 13/32	25/-	12 5/8	6 5/16
7/32	5/10	3 3/4	1 7/8	19/32	9/2	6 3/4	3 3/8	1	15/5	10 7/8	5 7/16	1 7/16	25/-	12 7/8	6 7/16
				5/8	9/2	7	3 1/2	1 1/32	16/8	11 1/8	5 9/16	1 15/32	26/8	12 7/8	6 7/16
1/4	5/10	4	2	21/32	10/-	7 3/8	3 11/16	1 1/16	16/8	11 1/4	5 5/8	1 1/2	26/8	13	6 1/2
9/32	6/3	4 1/4	2 1/8	11/16	10/-	7 3/4	3 7/8	1 3/32	17/11	11 1/2	5 3/4	1 9/16	28/4	13	6 1/2
5/16	6/3	4 1/2	2 1/4					1 1/8	17/11	11 5/8	5 13/16	1 5/8	30/-	13	6 1/2
11/32	6/8	4 3/4	2 3/8	23/32	10/10	8 1/8	4 1/16	1 5/32	19/2	11 7/8	5 15/16	1 11/16	31/8	13 1/2	6 1/4
				3/4	10/10	8 3/8	4 3/16					1 3/4	33/4	13 1/2	6 3/4
				25/32	11/8	8 3/4	4 3/8	1 3/16	19/2	12	6				
3/8	6/8	5	2 1/2					1 7/32	20/5	12 1/8	6 1/16	1 13/16	35/-	13 1/2	6 3/4
13/32	7/4	5 1/4	2 5/8	13/16	11/8	9 1/8	4 9/16	1 1/4	20/5	12 1/4	6 1/8	1 7/8	36/8	14	7
7/16	7/4	5 1/2	2 3/4	27/32	12/11	9 3/8	4 11/16	1 9/32	21/8	12 3/8	6 3/16	1 15/16	38/4	14	7
15/32	7/11	5 3/4	2 7/8	7/8	12/11	9 3/4	4 7/8	1 5/16	21/8	12 1/2	6 1/4	2	40/-	14	7

Metric Sizes with Straight Shank and Squared End, No. 804.

Diam. m/m.	Price Each	Full Length m/m.	Length of Flutes m/m.	Diam. m/m.	Price Each	Full Length m/m.	Length of Flutes m/m.	Diam. m/m.	Price Each	Full Length m/m.	Length of Flutes m/m.	Diam. m/m.	Price Each	Full Length m/m.	Length of Flutes m/m.
3	4/2	76	38	10 1/2	7/4	133	67	23	14/2	254	127	37	26/8	327	164
3 1/2	5/-	83	41	11	7/4	140	70	24	15/5	270	135	38	26/8	330	165
4	5/-	83	41	11 1/2	7/11	146	73	25	15/5	276	138	39	28/4	330	165
4 1/2	5/-	89	44	12	7/11	146	73	26	16/8	283	141	40	30/-	330	165
5	5/10	95	48	13	8/4	159	79	27	16/8	286	143	41	30/-	330	165
5 1/2	5/10	95	48	14	8/4	165	83	28	17/11	295	148	42	31/8	330	165
6	5/10	102	51	15	9/2	171	86	29	19/2	302	151	43	33/4	343	171
6 1/2	6/3	102	51	16	10/-	178	89	30	19/2	305	152	44	33/4	343	171
7	6/3	108	54	17	10/-	197	98	31	20/5	308	154	45	35/-	343	171
7 1/2	6/3	114	57	18	10/10	206	103	32	21/8	311	156	46	35/-	343	171
8	6/8	114	57	19	10/10	213	106	33	21/8	317	159	47	36/8	356	178
8 1/2	6/8	121	60	20	11/8	222	111	34	23/4	317	159	48	38/4	356	178
9	6/8	127	63	21	12/11	238	119	35	25/-	321	160	49	38/4	356	178
9 1/2	6/8	127	63	22	12/11	248	124	36	25/-	327	164	50	40/-	356	178
10	7/4	133	67												

With Taper Shank, No. 808.

Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Socket for Morse Taper	Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Socket for Morse Taper	Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Socket for Morse Taper
1/4	7/1	5 3/16	2	No. 1	5/8	11/1	7 9/16	3 1/2	No. 2	15/16	17/1	10 3/16	5 1/8	No. 3
9/32	7/6	5 5/16	2 1/8		21/32	12/1	7 3/4	3 11/16		31/32	18/7	10 3/8	5 5/16	
5/16	7/6	5 1/2	2 1/4		11/16	12/1	8	3 7/8		1	18/7	10 9/16	5 7/16	
11/32	7/11	5 5/8	2 3/8		23/32	12/11	8 3/16	4 1/16		1 1/16	20/-	10 13/16	5 5/8	
3/8	7/11	5 13/16	2 1/2		3/4	12/11	8 3/8	4 3/16		1 1/8	21/6	11 1/16	5 13/16	
13/32	9/-	5 15/16	2 5/8		25/32	14/-	8 9/16	4 3/8		1 3/16	22/11	11 5/16	6	
7/16	9/-	6 1/8	2 3/4		13/16	14/-	8 13/16	4 9/16						
15/32	9/7	6 1/4	2 7/8		27/32	15/5	8 15/16	4 11/16		1 1/4	24/7	12 1/16	6 1/16	No. 4
1/2	9/7	6 7/16	3		7/8	15/5	9 3/16	4 7/8		1 5/16	26/1	12 1/8	6 1/4	
17/32	10/-	6 9/16	3 1/8		29/32	17/1	9 5/16	5		1 3/8	27/11	12 13/16	6 5/16	
9/16	10/-	6 3/4	3 1/4							1 7/16	30/-	13	6 7/16	
19/32	11/1	6 7/8	3 3/8							1 1/2	32/1	13 1/8	6 1/2	

Sizes of the above Reamers not listed can be made to order. Prices on application.

CARBON STEEL CHUCKING REAMERS

Union Carbon Steel Fluted Chucking Reamer (Made in Canada)

No. 855 with Morse Taper Shank. Not Tapered on End of Flutes

Diam. In.	Price Each	Length Ins.	Length of Flutes Ins.	Morse Taper
1/4	6/1	6	1 1/2	No. 1.
9/32	6/6	6	1 1/2	
5/16	6/6	6	1 1/2	
11/32	7/4	6	1 1/2	
3/8	7/4	7	1 3/4	
13/32	7/11	7	1 3/4	
7/16	7/11	7	1 3/4	
15/32	9/-	7	1 3/4	
1/2	9/-	8	2	
17/32	10/-	8	2	
9/16	10/-	8	2	
19/32	11/3	8	2	
5/8	11/3	9	2 1/4	No. 2.
21/32	12/1	9	2 1/4	
11/16	12/1	9	2 1/4	
23/32	12/9	9	2 1/4	
3/4	12/9	9 1/2	2 1/2	
25/32	14/-	9 1/2	2 1/2	
13/16	14/-	9 1/2	2 1/2	
27/32	15/-	9 1/2	2 1/2	
7/8	15/-	10	2 5/8	No. 3.
29/32	16/3	10	2 5/8	
15/16	16/3	10	2 5/8	
31/32	17/4	10	2 5/8	
1	17/4	10 1/2	2 3/4	No. 3.
1 1/32	18/7	10 1/2	2 3/4	
1 1/16	18/7	10 1/2	2 3/4	
1 3/32	19/7	10 1/2	2 3/4	
1 1/8	19/7	11	2 7/8	
1 5/32	20/10	11	2 7/8	
1 3/16	20/10	11	2 7/8	
1 7/32	21/8	11	2 7/8	
1 1/4	21/8	11 1/2	3	No. 4.
1 5/16	22/11	11 1/2	3	
1 3/8	24/-	12	3 1/4	
1 7/16	25/3	12	3 1/4	
1 1/2	26/3	12 1/2	3 1/2	

Union Rose Chucking Reamers, Nos. 856 and 851 (Made in Canada)

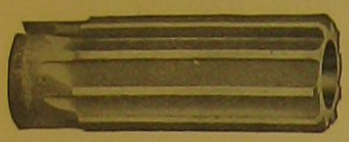
No. 856 with Morse Taper Shank

Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.	Morse Taper
1/4	6/1	6	1 1/2	No. 1.
9/32	6/6	6	1 1/2	
5/16	6/6	6	1 1/2	
11/32	7/4	6	1 1/2	
3/8	7/4	7	1 3/4	
13/32	7/11	7	1 3/4	
7/16	7/11	7	1 3/4	
15/32	9/-	7	1 3/4	
1/2	9/-	8	2	
17/32	10/-	8	2	
9/16	10/-	8	2	
19/32	11/3	8	2	
5/8	11/3	9	2 1/4	No. 2.
21/32	12/1	9	2 1/4	
11/16	12/1	9	2 1/4	
23/32	12/9	9	2 1/4	
3/4	12/9	9 1/2	2 1/2	
25/32	14/-	9 1/2	2 1/2	
13/16	14/-	9 1/2	2 1/2	
27/32	15/-	9 1/2	2 1/2	
7/8	15/-	10	2 5/8	No. 3.
29/32	16/3	10	2 5/8	
15/16	16/3	10	2 5/8	
31/32	17/4	10	2 5/8	
1	17/4	10 1/2	2 3/4	No. 3.
1 1/32	18/7	10 1/2	2 3/4	
1 1/16	18/7	10 1/2	2 3/4	
1 3/32	19/7	10 1/2	2 3/4	
1 1/8	19/7	11	2 7/8	
1 5/32	20/10	11	2 7/8	
1 3/16	20/10	11	2 7/8	
1 7/32	21/8	11	2 7/8	
1 1/4	21/8	11 1/2	3	No. 4.
1 5/16	22/11	11 1/2	3	
1 3/8	24/-	12	3 1/4	
1 7/16	25/3	12	3 1/4	
1 1/2	26/3	12 1/2	3 1/2	

No. 851 with Straight Shank

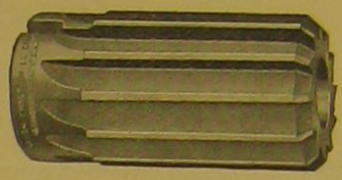
Diam. In.	Price Each	Full Length Ins.	Length of Flutes Ins.
1/4	5/-	6	1 1/2
9/32	5/5	6	1 1/2
5/16	5/5	6	1 1/2
11/32	6/1	6	1 1/2
3/8	6/1	7	1 3/4
13/32	6/8	7	1 3/4
7/16	6/8	7	1 3/4
15/32	7/6	7	1 3/4
1/2	7/6	8	2
17/32	8/4	8	2
9/16	8/4	8	2
19/32	9/5	8	2
5/8	9/5	9	2 1/4
21/32	10/-	9	2 1/4
11/16	10/-	9	2 1/4
23/32	10/8	9	2 1/4
3/4	10/8	9 1/2	2 1/2
25/32	11/8	9 1/2	2 1/2
13/16	11/8	9 1/2	2 1/2
27/32	12/6	9 1/2	2 1/2
7/8	12/6	10	2 5/8
29/32	13/7	10	2 5/8
15/16	13/7	10	2 5/8
31/32	14/5	10	2 5/8
1	14/5	10 1/2	2 3/4
1 1/32	15/5	10 1/2	2 3/4
1 1/16	15/5	10 1/2	2 3/4
1 3/32	16/3	10 1/2	2 3/4
1 1/8	16/3	11	2 7/8
1 5/32	17/4	11	2 7/8
1 3/16	17/4	11	2 7/8
1 7/32	18/2	11	2 7/8
1 1/4	18/2	11 1/2	3
1 5/16	19/2	11 1/2	3
1 3/8	20/-	12	3 1/4
1 7/16	21/1	12	3 1/4
1 1/2	21/11	12 1/2	3 1/2

CARBON STEEL REAMERS



Union Carbon Steel Shell Reamers

(Made in Canada)



No. 810—Shell Reamer
WITH STRAIGHT FLUTES

No. 815—Rose Shell Reamer
WITH STRAIGHT FLUTES

Shell Reamers have taper holes ($\frac{1}{8}$ in. to 1 foot), the diameter given being at the large end

Diam. Ins.	Length Ins.	Size Hole Ins.	Price Each	Diam. Ins.	Length Ins.	Size Hole Ins.	Price Each	Diam. Ins.	Length Ins.	Size Hole Ins.	Price Each	Diam. Ins.	Length Ins.	Size Hole Ins.	Price Each
$\frac{1}{2}$	2	$\frac{1}{4}$	7/1	$1\frac{9}{16}$	3	$\frac{3}{4}$	19/-	$2\frac{9}{16}$	4	$1\frac{1}{2}$	40/10	$3\frac{9}{16}$	5	2	71/8
$\frac{9}{16}$	2	$\frac{1}{4}$	7/6	$1\frac{5}{8}$	3	$\frac{3}{4}$	20/-	$2\frac{5}{8}$	4	$1\frac{1}{2}$	43/6	$3\frac{5}{8}$	5	2	74/2
$\frac{5}{8}$	$2\frac{1}{4}$	$\frac{3}{8}$	7/11	$1\frac{11}{16}$	$3\frac{1}{2}$	1	21/3	$2\frac{11}{16}$	4	$1\frac{1}{2}$	44/2	$3\frac{11}{16}$	5	2	76/8
$\frac{11}{16}$	$2\frac{1}{4}$	$\frac{3}{8}$	8/4	$1\frac{3}{4}$	$3\frac{1}{2}$	1	22/6	$2\frac{3}{4}$	4	$1\frac{1}{2}$	45/10	$3\frac{3}{4}$	5	2	79/2
$\frac{3}{4}$	$2\frac{1}{2}$	$\frac{1}{2}$	8/9	$1\frac{13}{16}$	$3\frac{1}{2}$	1	23/9	$2\frac{13}{16}$	4	$1\frac{1}{2}$	47/6	$3\frac{13}{16}$	5	2	81/8
$\frac{13}{16}$	$2\frac{1}{2}$	$\frac{1}{2}$	9/2	$1\frac{7}{8}$	$3\frac{1}{2}$	1	25/-	$2\frac{7}{8}$	4	$1\frac{1}{2}$	49/2	$3\frac{7}{8}$	5	2	84/2
$\frac{7}{8}$	$2\frac{1}{2}$	$\frac{1}{2}$	9/7	$1\frac{15}{16}$	$3\frac{1}{2}$	1	26/3	$2\frac{15}{16}$	4	$1\frac{1}{2}$	50/10	$3\frac{15}{16}$	5	2	86/8
$\frac{15}{16}$	$2\frac{1}{2}$	$\frac{1}{2}$	10/-	2	$3\frac{1}{2}$	1	27/6	3	4	$1\frac{1}{2}$	52/6	4	5	2	89/2
1	$2\frac{1}{2}$	$\frac{5}{8}$	10/5	$2\frac{1}{16}$	$3\frac{3}{4}$	$1\frac{1}{4}$	29/-	$3\frac{1}{16}$	$4\frac{1}{2}$	$1\frac{3}{4}$	54/7	$4\frac{1}{8}$	$5\frac{1}{2}$	$2\frac{1}{4}$	95/5
$1\frac{1}{16}$	$2\frac{3}{4}$	$\frac{5}{8}$	11/3	$2\frac{1}{8}$	$3\frac{3}{4}$	$1\frac{1}{4}$	30/5	$3\frac{1}{8}$	$4\frac{1}{2}$	$1\frac{3}{4}$	56/8	$4\frac{1}{4}$	$5\frac{1}{2}$	$2\frac{1}{4}$	101/8
$1\frac{1}{8}$	$2\frac{3}{4}$	$\frac{5}{8}$	12/1	$2\frac{3}{16}$	$3\frac{3}{4}$	$1\frac{1}{4}$	31/10	$3\frac{3}{16}$	$4\frac{1}{2}$	$1\frac{3}{4}$	58/9	$4\frac{3}{8}$	$5\frac{1}{2}$	$2\frac{1}{4}$	107/11
$1\frac{3}{16}$	$2\frac{3}{4}$	$\frac{5}{8}$	12/11	$2\frac{1}{4}$	$3\frac{3}{4}$	$1\frac{1}{4}$	33/4	$3\frac{1}{4}$	$4\frac{1}{2}$	$1\frac{3}{4}$	60/10	$4\frac{1}{2}$	$5\frac{1}{2}$	$2\frac{1}{4}$	114/3
$1\frac{1}{4}$	$2\frac{3}{4}$	$\frac{5}{8}$	13/9	$2\frac{5}{16}$	$3\frac{3}{4}$	$1\frac{1}{4}$	34/10	$3\frac{5}{16}$	$4\frac{1}{2}$	$1\frac{3}{4}$	62/11	$4\frac{5}{8}$	6	$2\frac{1}{2}$	122/1
$1\frac{5}{16}$	3	$\frac{3}{4}$	14/10	$2\frac{3}{8}$	$3\frac{3}{4}$	$1\frac{1}{4}$	36/3	$3\frac{3}{8}$	$4\frac{1}{2}$	$1\frac{3}{4}$	65/-	$4\frac{3}{4}$	6	$2\frac{1}{2}$	130/-
$1\frac{3}{8}$	3	$\frac{3}{4}$	15/10	$2\frac{7}{16}$	$3\frac{3}{4}$	$1\frac{1}{4}$	37/9	$3\frac{7}{16}$	$4\frac{1}{2}$	$1\frac{3}{4}$	67/1	$4\frac{7}{8}$	6	$2\frac{1}{2}$	137/11
$1\frac{7}{16}$	3	$\frac{3}{4}$	16/11	$2\frac{1}{2}$	$3\frac{3}{4}$	$1\frac{1}{4}$	39/2	$3\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{3}{4}$	69/2	5	6	$2\frac{1}{2}$	145/10
$1\frac{1}{2}$	3	$\frac{3}{4}$	17/11												

Arbors, No. 404, for Shell Reamers (Made in Canada)

No.	Fitting Sizes	Full Length	Price	No.	Fitting Sizes	Full Length	Price	No.	Fitting Sizes	Full Length	Price
	Inches	Inches			Inches	Inches			Inches	Inches	
3	$\frac{1}{2}$ to $\frac{5}{8}$	8	12/3	7	$1\frac{5}{16}$ to $1\frac{21}{32}$	11	18/-	11	$3\frac{1}{16}$ to $3\frac{1}{2}$	15	31/3
4	$\frac{21}{32}$,, $\frac{25}{32}$	9	13/6	8	$1\frac{11}{16}$,, 2	12	20/-	12	$3\frac{9}{16}$,, 4	16	43/9
5	$\frac{13}{16}$,, $1\frac{1}{32}$	$9\frac{1}{2}$	15/-	9	$2\frac{1}{16}$,, $2\frac{1}{2}$	13	22/6	13	$4\frac{1}{16}$,, $4\frac{1}{2}$	17	56/3
6	$1\frac{1}{16}$,, $1\frac{9}{32}$	10	16/6	10	$2\frac{9}{16}$,, 3	14	26/3	14	$4\frac{9}{16}$,, $5\frac{1}{2}$	18	75/-

Union Carbon Steel Expansion Reamer, No. 828 (Made in Canada)

With Straight Flutes

Diam. Ins.	Price Each	Whole Length Ins.	Length of Flutes Ins.	Diam. Ins.	Price Each	Whole Length Ins.	Length of Flutes Ins.	Diam. Ins.	Price Each	Whole Length Ins.	Length of Flutes Ins.
$\frac{1}{4}$	12/6	4	$1\frac{1}{2}$	$\frac{3}{4}$	20/-	8	$3\frac{1}{2}$	$1\frac{9}{32}$	39/7	11	5
$\frac{9}{32}$	12/11	4	$1\frac{1}{2}$	$\frac{25}{32}$	21/11	8	$3\frac{1}{2}$	$1\frac{5}{16}$	39/7	11	5
$\frac{5}{16}$	12/11	4	$1\frac{1}{2}$	$\frac{13}{16}$	21/11	8	$3\frac{1}{2}$	$1\frac{11}{32}$	43/9	11	5
$\frac{11}{32}$	13/4	4	$1\frac{1}{2}$	$\frac{27}{32}$	24/-	8	$3\frac{1}{2}$	$1\frac{3}{8}$	43/9	$11\frac{1}{2}$	$5\frac{1}{4}$
$\frac{3}{8}$	13/4	5	2	$\frac{7}{8}$	24/-	9	4	$1\frac{13}{32}$	47/11	$11\frac{1}{2}$	$5\frac{1}{4}$
$\frac{13}{32}$	13/9	5	2	$\frac{29}{32}$	26/1	9	4	$1\frac{7}{16}$	47/11	$11\frac{1}{2}$	$5\frac{1}{4}$
$\frac{7}{16}$	13/9	5	2	$\frac{15}{16}$	26/1	9	4	$1\frac{15}{32}$	52/1	$11\frac{1}{2}$	$5\frac{1}{4}$
$\frac{15}{32}$	14/2	5	2	$\frac{31}{32}$	28/2	9	4	$1\frac{1}{2}$	52/1	12	$5\frac{1}{2}$
$\frac{1}{2}$	14/2	6	$2\frac{1}{2}$	1	28/2	10	$4\frac{1}{2}$	$1\frac{9}{16}$	54/2	12	$5\frac{1}{2}$
$\frac{17}{32}$	15/3	6	$2\frac{1}{2}$	$1\frac{1}{32}$	30/3	10	$4\frac{1}{2}$	$1\frac{5}{8}$	56/3	$12\frac{1}{2}$	$5\frac{3}{4}$
$\frac{9}{16}$	15/3	6	$2\frac{1}{2}$	$1\frac{1}{16}$	30/3	10	$4\frac{1}{2}$	$1\frac{11}{16}$	58/4	$12\frac{1}{2}$	$5\frac{3}{4}$
$\frac{19}{32}$	16/8	6	$2\frac{1}{2}$	$1\frac{3}{32}$	32/4	10	$4\frac{1}{2}$	$1\frac{3}{4}$	60/5	13	6
$\frac{5}{8}$	16/8	7	3	$1\frac{3}{32}$	32/4	$10\frac{1}{2}$	$4\frac{3}{4}$	$1\frac{13}{16}$	62/6	13	6
$\frac{21}{32}$	18/4	7	3	$1\frac{5}{32}$	34/7	$10\frac{1}{2}$	$4\frac{3}{4}$	$1\frac{7}{8}$	64/7	$13\frac{1}{2}$	$6\frac{1}{4}$
$\frac{11}{16}$	18/4	7	3	$1\frac{7}{32}$	34/7	$10\frac{1}{2}$	$4\frac{3}{4}$	$1\frac{15}{16}$	66/8	$13\frac{1}{2}$	$6\frac{1}{4}$
$\frac{23}{32}$	20/-	7	3	$1\frac{9}{32}$	37/1	$10\frac{1}{2}$	$4\frac{3}{4}$	2	68/9	14	$6\frac{1}{2}$
				$1\frac{1}{4}$	37/1	11	5				

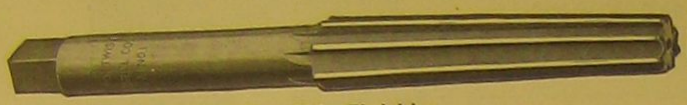
Limits of expansion recommended for these Reamers are as follows:—$\frac{1}{4}$ to $\frac{15}{32}$ inch, ·005 inch; $\frac{1}{2}$ to $\frac{31}{32}$ inch, ·008 inch; 1 to $1\frac{29}{32}$ inches, ·010 inch; $1\frac{1}{4}$ to 2 inches, ·012 inch.

The guides to these Reamers are ground ·005 inch under size.

CARBON STEEL REAMERS

Union Carbon Steel Taper Reamers, Nos. 825 and 820 (Made in Canada)

For Morse Taper Sockets



No. 825—Finishing

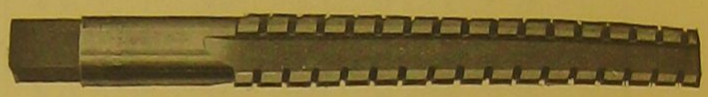
No. 820—Roughing

Size	Price Each No. 825, Finishing.	Price Each No. 820, Roughing.	Length Ins.	Length of Flutes Ins.	Taper	Size	Price Each No. 825, Finishing.	Price Each No. 820, Roughing.	Length Ins.	Length of Flutes Ins.	Taper
No. 0, for No. 0 Socket	6/8	7/11	3¾	2¼	·368 × ·251	**No. 3,** for No. 3 Socket	14/2	17/1	8	4½	·989 × ·776
,, 1, ,, ,, 1 ,,	8/4	10/-	5⅛	3	·517 × ·367	,, 4, ,, ,, 4 ,,	17/6	21/1	9	5¼	1·290 × 1·018
,, 2, ,, ,, 2 ,,	10/10	12/11	7	3½	·746 × ·570	,, 5, ,, ,, 5 ,,	27/6	32/11	10	6¼	1·801 × 1·473

Union Carbon Steel Taper Reamers, Nos. 835 and 830 (Made in Canada)

For B. and S. Taper Sockets

No. 835—Finishing



No. 830—Roughing

No. of Taper	Price Each No. 835, Finishing	Price Each No. 830, Roughing	Length Overall Ins.	Length of Flutes Ins.	No. of Taper	Price Each No. 835, Finishing	Price Each No. 830, Roughing	Length Overall Ins.	Length of Flutes Ins.
1	7/4	8/9	4¾	2⅞	7	14/7	17/6	7⅛	4⅞
2	8/4	10/-	5⅛	3⅛	8	15/8	18/9	8⅛	5½
3	9/5	11/3	5½	3⅜	9	16/8	20/-	8⅞	6⅛
4	10/5	12/6	5⅞	3 11/16	10	20/10	25/-	9¾	6⅞
5	12/6	15/-	6⅜	4	11	25/-	30/-	10⅝	7⅝
6	13/7	16/3	6⅞	4⅜	12	33/4	40/-	11⅜	8¼

Union Carbon Steel Bit Stock Taper Reamers, No. 840 (Made in Canada)

Taper ¾ inch to the foot. Diameter at large end of flutes is 1/16 larger than nominal size

Nominal Size In.	Price Each	Total Length Ins.	Length of Flutes Ins.	Nominal Size In.	Price Each	Total Length Ins.	Length of Flutes Ins.	Nominal Size In.	Price Each	Total Length Ins.	Length of Flutes Ins.
⅛	2/6	3¾	1⅝	7/16	2/11	4½	2⅜	¾	5/3	5⅛	3
3/16	2/6	3⅞	1¾	½	3/2	4⅝	2½	13/16	6/3	5¼	3⅛
¼	2/6	4⅛	2	9/16	3/4	4¾	2⅝	⅞	7/4	5⅜	3¼
5/16	2/6	4¼	2⅛	⅝	4/-	4⅞	2¾	15/16	8/4	5½	3⅜
⅜	2/9	4⅜	2¼	11/16	4/7	5	2⅞	1	9/5	5⅝	3½

Union Carbon Steel Taper Pin Reamers, No. 845 (Made in Canada)

These Reamers have the same taper, and each will overlay in convenient measure the next smaller size. The diameter of the small end is taken ½ inch from the extreme end of the Reamers. Taper ¼ inch per foot.

Size No.	Price Each	Diam. at Small End In.	Whole Length In.	Length of Flutes Ins.	Size No.	Price Each	Diam. at Small End In.	Whole Length In.	Length of Flutes Ins.
000	6/3	·101	2	1⅜	7	10/5	·331	6	4½
00	5/8	·114	2¼	1½	8	12/6	·398	6¾	5¼
0	4/2	·127	2⅜	1⅝	9	14/7	·482	8	6⅛
1	4/2	·146	2½	1¾	10	18/9	·581	9	7
2	5/3	·162	3	2	11	25/-	·706	11¼	8¼
3	6/3	·183	3½	2¼	12	31/3	·842	13⅜	10
4	7/4	·208	4	2⅝	13	37/6	1·009	16	12
5	8/4	·240	4½	3	14	45/10	1·250	18¼	14
6	9/5	·279	5	3⅝					

TAPER PIN REAMERS AND TAPER PINS

"Gammons" Taper Pin Reamer (Made in U.S.A.)

Taper ¼ inch per foot

The "Gammons" Taper Pin Reamer is intended for machine use, and by reason of its unique design, enables holes to be rapidly, accurately, and economically reamed in metal at least three times as quickly as with a fluted reamer. **They may be run at any reasonable speed and feed** without risk or breakage. **For occasional reaming** a standard taper reamer is sufficient, but where a large quantity of this work is to be done, the **"Gammons" Reamer** is so much quicker and more efficient that there can be no comparison between the two types of reamers. **Also supplied with Morse Taper Shanks**:—No. 1 M.T. Shanks for Reamers Nos. 000–8; No. 2 M.T. Shanks for Reamers Nos. 9–11; and No. 3 M.T. Shank for Reamer No. 12.

Sizes and Prices

Size No.	Price Each Straight Shank	Price Each M.T. Shank	Length of Cut Ins.	Length Overall Ins.	Diam. at Small End Ins.	Diam. at Large End Ins.	Size Drill for Tap	Size No.	Price Each Straight Shank	Price Each M.T. Shank	Length of Cut Ins.	Length Overall Ins.	Diam. at Small End Ins.	Diam. at Large End Ins.	Size Drill for Tap
000	7/4	10/6	1⅜	2	·101	·130	No. 37	5	12/6	15/8	3	4½	·240	·302	Ins. ¼
00	7/4	10/6	1½	2¼	·114	·145	,, 32	6	14/7	17/9	3⅝	5	·279	·354	,, 9/32
0	7/4	10/6	1⅝	2⅜	·127	·161	,, 30	7	16/8	19/10	4½	6	·331	·425	,, 11/32
1	8/4	11/6	1¾	2½	·146	·182	,, 25	8	18/9	21/11	5¼	6¾	·398	·507	,, 13/32
2	9/5	12/7	2	3	·162	·204	,, 19	9	20/10	25/-	6⅛	8	·482	·609	,, 31/64
3	10/5	13/7	2¼	3½	·183	·230	,, 12	10	25/-	29/2	7	9	·581	·727	,, 19/32
4	11/6	14/8	2½	4	·208	·260	,, 3	11	31/3	35/5	8¼	11¼	·706	·878	,, 23/32
								12	37/6	43/9	10	13⅜	·842	1·050	,, 55/64

Each size will overlay about ¼ inch the next size smaller.

Quick Spiral Taper Pin Reamer, High Speed Steel (British Made)

FOR MACHINE USE ONLY.
TAPER ¼ INCH PER FOOT.

Size No.	Price Each Straight Shank	Price Each Taper Shank	Diam. at Small End In.	Diam. at Large End In.	Length of Cut Ins.	No. of Morse Taper Shank	Size No.	Price Each Straight Shank	Price Each Taper Shank	Diam. at Small End In.	Diam. at Large End In.	Length of Cut Ins.	No. of Morse Taper Shank
000	7/4	10/6	·101	·130	1⅜	1	6	14/7	17/9	·279	·354	3⅝	1
00	7/4	10/6	·114	·145	1½	1	7	16/8	19/10	·331	·425	4½	1
0	7/4	10/6	·127	·161	1⅝	1	8	18/9	21/11	·398	·507	5¼	1
1	8/4	11/6	·146	·182	1¾	1	9	20/10	25/-	·482	·609	6⅛	2
2	9/5	12/7	·162	·204	2	1	10	25/-	29/2	·581	·727	7	2
3	10/5	13/7	·183	·230	2¼	1	11	31/3	35/5	·706	·878	8¼	2
4	11/6	14/8	·208	·260	2½	1	12	37/6	43/9	·842	1·050	10	3
5	12/6	15/8	·240	·302	3	1							

Genuine Morse Taper Pins (Made in U.S.A.)

Taper ¼ inch to the foot

These Taper Pins are lapped and are highly polished and finely finished.

Prices per Hundred

Nos.	00	0	1	2	3	4	5	6	7	8	9	10
Diameter at large end in.	·141	·156	·172	·193	·219	·250	·289	·341	·409	·492	·591	·706
Approximate fractional sizes	9/64	5/32	11/64	3/16	7/32	¼	19/64	11/32	13/32	½	19/32	23/32
Length ... ... ½ ins.	7/6	7/6	—	—	—	—	—	—	—	—	—	—
,, ... ¾ ,,	7/6	7/6	8/4	8/9	9/7	10/5	—	—	—	—	—	—
,, ... 1 ,,	8/7	8/7	9/5	9/10	10/8	11/6	12/6	—	—	—	—	—
,, ... 1¼ ,,	9/7	*9/7	10/5	10/10	11/8	12/6	13/6	14/6	—	—	—	—
,, ... 1½ ,,	—	10/8	*11/6	12/-	12/9	13/6	14/6	15/9	—	—	—	—
,, ... 1¾ ,,	—	—	12/6	*12/11	13/9	14/6	15/9	16/9	—	—	—	—
,, ... 2 ,,	—	—	13/7	14/-	*14/10	15/9	16/10	18/3	19/10	24/3	—	—
,, ... 2¼ ,,	—	—	—	15/-	15/10	*16/8	18/4	19/10	22/-	26/-	—	—
,, ... 2½ ,,	—	—	—	16/1	16/11	17/9	*19/10	21/9	24/-	28/3	—	—
,, ... 2¾ ,,	—	—	—	—	17/11	18/9	21/3	23/9	26/-	30/3	40/9	—
,, ... 3 ,,	—	—	—	—	19/-	19/10	22/9	26/-	28/3	32/6	43/9	—
,, ... 3¼ ,,	—	—	—	—	—	—	—	*28/3	30/3	35/-	46/9	—
,, ... 3½ ,,	—	—	—	—	—	—	—	30/3	32/3	37/6	49/6	63/6
,, ... 3¾ ,,	—	—	—	—	—	—	—	32/4	34/6	40/-	52/6	67/9
,, ... 4 ,,	—	—	—	—	—	—	—	34/5	*36/6	42/6	55/6	72/-
,, ... 4¼ ,,	—	—	—	—	—	—	—	—	—	45/-	58/3	76/-
,, ... 4½ ,,	—	—	—	—	—	—	—	—	—	47/6	61/3	80/3
,, ... 4¾ ,,	—	—	—	—	—	—	—	—	—	50/-	64/3	84/6
,, ... 5 ,,	—	—	—	—	—	—	—	—	—	52/6	67/-	88/6
,, ... 5¼ ,,	—	—	—	—	—	—	—	—	—	—	70/-	92/9
,, ... 5½ ,,	—	—	—	—	—	—	—	—	—	—	72/11	97/-
,, ... 5¾ ,,	—	—	—	—	—	—	—	—	—	—	75/10	101/-
,, ... 6 ,,	—	—	—	—	—	—	—	—	—	—	78/9	105/-

*Taper Pins marked thus are too long for use with regular Taper Pin Reamers of corresponding numbers.

CARBON STEEL REAMERS

COMET ("A1") Carbon Steel Parallel Hand Reamers (British Made)

With Straight Shank and Squared End.

With Spiral or Straight Flutes

Spiral Fluted Reamers are strongly recommended in preference to straight fluted type and will be sent unless otherwise ordered.

Taper Reamers—Sizes up to ⅝ in. diam. have taper 1 in 96 and above have taper of 1 in 64. Four-fifths of the flute length is tapered and one-fifth parallel. Lengths overall are identical with those below.

Cutting edges are unequally spaced. Shank diameters are ·001 inch less than respective cutting diameters.

Parallel Hand Reamers are supplied with a taper lead except where ordered without any lead for bottoming.

Diameter			Price Each	Length Overall Ins.	Length of Flutes Ins.	Diameter			Price Each	Length Overall Ins.	Length of Flutes Ins.	Diameter			Price Each	Length Overall Ins.	Length of Flutes Ins.
Ins.	M/M	Decimal Equivalent				Ins.	M/M	Decimal Equivalent				Ins.	M/M	Decimal Equivalent			
—	3·0	·1181	5/3	3	1½	—	16·5	·6496	11/9	7	3½	—	32·0	1·2595	33/–	12	6
1/8	—	·1250	4/9	3	1½	11/32	—	·6562	11/9	7	3½	1 9/32	—	1·2812	33/–	12	6
—	3·5	·1378	4/6	3	1½	—	17·0	·6693	11/9	7	3½	—	33·0	1·2992	33/–	12	6
9/64	—	·1562	4/6	3	1½	11/16	—	·6875	11/9	7	3½	1 5/16	—	1·3125	33/–	12	6
—	4·0	·1575	4/3	3	1½	—	17·5	·6890	11/9	7	3½	—	34·0	1·3386	37/–	13	6½
—	4·5	·1772	4/3	3	1½	—	18·0	·7087	13/9	8	4	1 11/32	—	1·3437	37/–	13	6½
11/64	—	·1875	4/3	3	1½	23/32	—	·7187	13/9	8	4	1⅜	—	1·3750	37/–	13	6½
—	5·0	·1969	5/–	4	2	—	18·5	·7283	13/9	8	4	—	35·0	1·3779	37/–	13	6½
—	5·5	·2165	5/–	4	2	—	19·0	·7480	13/9	8	4	1 13/32	—	1·4062	39/–	13	6½
7/32	—	·2187	5/–	4	2	¾	—	·7500	13/9	8	4	—	36·0	1·4173	39/–	13	6½
—	6·0	·2362	5/–	4	2	—	19·5	·7677	14/6	8	4	1 7/16	—	1·4375	39/–	13	6½
¼	—	·2500	5/–	4	2	25/32	—	·7812	14/6	8	4	—	37·0	1·4567	42/–	13½	6½
—	6·5	·2559	5/3	4	2	—	20·0	·7874	14/6	8	4	1 15/32	—	1·4687	42/–	13½	6½
—	7·0	·2756	5/3	4	2	—	20·5	·8071	14/6	8	4	—	38·0	1·4961	42/–	13½	6½
9/32	—	·2812	5/3	4	2	13/16	—	·8125	14/6	8	4	1½	—	1·5000	42/–	13½	6½
—	7·5	·2953	5/3	4	2	—	21·0	·8268	16/6	9	4½	1 17/32	—	1·5312	46/–	13½	6½
5/16	—	·3125	5/3	4	2	27/32	—	·8437	16/6	9	4½	—	39·0	1·5354	46/–	13½	6½
—	8·0	·3150	5/3	4	2	—	21·5	·8465	16/6	9	4½	1 9/16	—	1·5625	46/–	13½	6½
—	8·5	·3346	6/3	4	2	—	22·0	·8661	16/6	9	4½	—	40·0	1·5748	50/–	13½	6½
11/32	—	·3437	6/3	5	2½	⅞	—	·8750	16/6	9	4½	1 19/32	—	1·5937	50/–	13½	6½
—	9·0	·3543	6/3	5	2½	—	22·5	·8858	17/3	9	4½	—	41·0	1·6142	50/–	13½	6½
—	9·5	·3740	6/3	5	2½	—	23·0	·9055	17/3	9	4½	1⅝	—	1·6250	50/–	13½	6½
⅜	—	·3750	6/3	5	2½	29/32	—	·9062	17/3	9	4½	—	42·0	1·6536	52/–	13½	6½
—	10·0	·3937	6/9	5	2½	—	23·5	·9252	17/3	9	4½	1 21/32	—	1·6562	52/–	13½	6½
13/32	—	·4062	6/9	5	2½	15/16	—	·9375	17/3	9	4½	1 11/16	—	1·6875	52/–	13½	6½
—	10·5	·4134	6/9	5	2½	—	24·0	·9449	20/–	10	5	—	43·0	1·6929	52/–	13½	6½
—	11·0	·4330	6/9	5	2½	—	24·5	·9646	20/–	10	5	1 23/32	—	1·7187	55/–	13¾	6½
7/16	—	·4375	6/9	5	2½	31/32	—	·9687	20/–	10	5	—	44·0	1·7323	55/–	13¾	6½
—	11·5	·4528	8/–	6	3	—	25·0	·9842	20/–	10	5	1¾	—	1·7500	55/–	13¾	6½
15/32	—	·4687	8/–	6	3	1	—	1·0000	20/–	10	5	—	45·0	1·7717	57/–	13¾	6½
—	12·0	·4724	8/–	6	3	—	26·0	1·0236	22/–	10	5	1 25/32	—	1·7812	57/–	13¾	6½
—	12·5	·4921	8/–	6	3	1 1/32	—	1·0312	22/–	10	5	—	46·0	1·8110	57/–	13¾	6½
½	—	·5000	8/–	6	3	1 1/16	—	1·0625	22/–	10	5	1 13/16	—	1·8125	57/–	13¾	6¾
—	13·0	·5118	8/6	6	3	—	27·0	1·0630	22/–	10	5	1 27/32	—	1·8437	62/–	14	7
17/32	—	·5312	8/6	6	3	1 3/32	—	1·0937	26/–	11	5½	—	47·0	1·8504	62/–	14	7
—	13·5	·5315	8/6	6	3	—	28·0	1·1024	26/–	11	5½	1⅞	—	1·8750	62/–	14	7
—	14·0	·5512	8/6	6	3	1⅛	—	1·1250	26/–	11	5½	—	48·0	1·8898	67/–	14	7
9/16	—	·5625	8/6	6	3	—	29·0	1·1417	28/–	11	5½	1 29/32	—	1·9062	67/–	14	7
—	14·5	·5709	10/6	7	3½	1 5/32	—	1·1562	28/–	11	5½	—	49·0	1·9291	67/–	14	7
—	15·0	·5906	10/6	7	3½	—	30·0	1·1811	28/–	11	5½	1 15/16	—	1·9375	67/–	14	7
19/32	—	·5937	10/6	7	3½	1 7/32	—	1·1875	28/–	11	5½	—	50·0	1·9685	75/–	14½	7½
—	15·5	·6102	10/6	7	3½	1 3/16	—	1·2187	31/–	12	6	1 31/32	—	1·9687	75/–	14½	7½
5/8	—	·6250	10/6	7	3½	—	31·0	1·2205	31/–	12	6	2	—	2·0000	75/–	14½	7½
—	16·0	·6299	10/6	7	3½	1¼	—	1·2500	31/–	12	6						

COMET ("A1") Carbon Steel Taper Pin Reamers (British Made)

With Straight Shanks.
With Straight Flutes.
Taper ¼ inch per foot (1 in 48)

Nominal Diam. Ins.	Price Each	Diam., Ins. Small End	Diam., Ins. Large End	Length Cutting Edges Ins.	Length Overall Ins.	Nominal Diam. Ins.	Price Each	Diam., Ins. Small End	Diam., Ins. Large End	Length Cutting Edges Ins.	Length Overall Ins.	Nominal Diam. Ins.	Price Each	Diam., Ins. Small End	Diam., Ins. Large End	Length Cutting Edges Ins.	Length Overall Ins.
6–0	7/–	·0606	·0814	1	2	1	4/3	·135	·182	2¼	3	7	8/9	·3173	·424	5⅛	6⅜
5–0	6/3	·075	·0984	1⅛	2⅛	2	5/–	·151	·203	2½	3¼	8	11/–	·369	·507	6⅛	7⅛
4–0	5/6	·088	·114	1¼	2¼	3	5/3	·1717	·229	2¾	3¾	9	13/–	·4472	·606	7⅛	8⅛
3–0	5/–	·101	·1322	1½	2½	4	6/–	·1975	·260	3	4	10	17/–	·5543	·721	8	9¼
2–0	4/9	·112	·151	1⅞	2⅝	5	6/6	·2287	·299	3⅜	4⅜	11	25/–	·706	·878	8¼	11¼
0	4/3	·1245	·166	2	2¾	6	7/6	·2675	·356	4¼	5¼	12	32/–	·842	1·050	10	13⅜

The prices shown above are for Standard Reamers to B.S.I. limits only. Reamers to finer limits are special and are charged extra.
Intermediate fractional sizes take the list price of the next larger fractional size.
Reamers of standard lengths, but with bastard diameters, are special, and will be quoted on application.

REAMERS AND LANCASHIRE BROACHES

COMET ("A1") Carbon Steel
Machine Reamers with Morse Taper Shank (British Made)

With Taper Shank and Spiral or Straight Flutes. Spiral Fluted Reamers are strongly recommended and will be sent unless otherwise ordered.
Machine Reamers are supplied with a bevel lead except when ordered with taper lead or with square corner for bottoming.

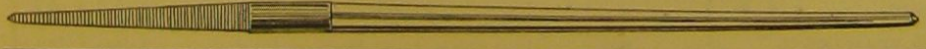
Diameter Ins.	Diameter M/M.	Diameter Decimal Equivalent	Price Each	Morse Taper Shank	Length Overall Ins.	Length of Cutting Edges Ins.
—	3·0	·1181	5/3	Parallel Shanks, ·0005" less than nominal dia.	3	1¼
1/8	—	·1250	4/9		3	1¼
—	3·5	·1378	4/6		3⅛	1⅛
9/64	—	·1406	4/9		3	1¼
5/32	—	·1562	4/6		3⅛	1⅛
—	4·0	·1575	4/3		3⅛	1⅛
11/64	—	·1719	4/6		3⅛	1⅛
—	4·5	·1772	4/3		3⅛	1⅛
3/16	—	·1875	4/3		3⅛	1⅛
13/64	—	·2031	5/–		4	1½
7/32	—	·2187	5/–		4	1½
15/64	—	·2344	5/–		4	1½
—	3·0	·1181	7/6	No. 1	4⅛	1¼
1/8	—	·1250	7/–		4⅛	1¼
—	3·5	·1378	7/–		4⅛	1¼
5/32	—	·1562	6/6		4¼	1½
—	4·0	·1575	6/6		4⅛	1⅛
—	4·5	·1772	6/6		4⅛	1⅛
7/32	—	·1875	6/6		4⅛	1⅛
—	5·0	·1969	7/–		5¼	2
—	5·5	·2165	7/–		5¼	2
9/32	—	·2187	7/–		5¼	2
—	6·0	·2362	7/–		5¼	2
1/4	—	·2500	7/–		5¼	2
—	6·5	·2559	7/3		5¼	2
—	7·0	·2756	7/3		5¼	2
9/32	—	·2812	7/3		5¼	2
—	7·5	·2953	7/3		5¼	2
5/16	—	·3125	7/3		5¼	2
—	8·0	·3150	7/3		5¼	2
—	8·5	·3346	7/9		5⅝	2⅛
11/64	—	·3437	7/9		5⅝	2⅛
—	9·0	·3543	7/9		5⅝	2⅛
—	9·5	·3740	7/9		5⅝	2⅛
3/8	—	·3750	7/9		5⅝	2⅛
—	10·0	·3937	8/–		5⅝	2⅛
13/64	—	·4062	8/–		5⅝	2⅛
—	10·5	·4134	8/–		5⅝	2⅛
—	11·0	·4330	8/–		5⅝	2⅛
7/16	—	·4375	8/–		5⅝	2⅛
—	11·5	·4528	8/3		6½	3
15/64	—	·4687	8/3		6½	3
—	12·0	·4724	8/3		6½	3
—	12·5	·4921	8/3		6½	3
1/2	—	·5000	8/3	No. 1	6½	3
—	13·0	·5118	9/3		6½	3
33/64	—	·5312	8/3		6½	3
—	14·0	·5512	9/3		6½	3
9/16	—	·5625	9/3		6½	3
—	15·0	·5906	11/6		7¼	3½
37/64	—	·5937	11/6		7¼	3½
19/32	—	·6250	11/6		7¼	3½
39/64	—	·6299	11/6		7¼	3½
—	16·0	·6299	11/6		7¼	3½
41/64	—	·6562	13/–		7¼	3½
—	17·0	·6693	13/–		7¼	3½
11/16	—	·6875	13/–		7¼	3½
—	18·0	·7087	14/9	No. 2	8⅛	4
45/64	—	·7187	14/9		8⅛	4
—	19·0	·7480	14/9		8⅛	4
15/32	—	·7500	14/9		8⅛	4
49/64	—	·7812	15/3		8⅛	4
—	20·0	·7874	15/3		8⅛	4
25/32	—	·8125	15/3		8⅛	4
—	21·0	·8268	17/–		8⅞	4½
53/64	—	·8437	17/–		8⅞	4½
—	22·0	·8661	17/–		8⅞	4½
27/32	—	·8750	17/–		8⅞	4½
—	23·0	·9055	19/6		8⅞	4½
57/64	—	·9062	19/6		9⅜	4½
—	24·0	·9449	21/6		10⅛	5
29/32	—	·9687	21/6		10⅛	5
59/64	—	·9842	21/6		10⅛	5
15/16	25·0	·9842	21/6		10⅛	5
61/64	—	1·0000	21/6		10⅛	5
—	26·0	1·0236	23/–		10⅛	5
31/32	—	1·0312	23/–		10⅛	5
—	27·0	1·0625	23/–	No. 3	10⅛	5
1 1/64	—	1·0630	23/–		10⅛	5
—	28·0	1·0937	23/–		10⅞	5½
1 1/32	—	1·1024	26/–		10⅞	5½
—	29·0	1·1250	26/–		10⅞	5½
1 3/64	—	1·1417	28/–		10⅞	5½
—	30·0	1·1562	28/–		10⅞	5½
1 1/16	—	1·1811	28/–		10⅞	5½
—	31·0	1·1875	28/–		10⅞	5½
1 5/64	—	1·2187	31/–		11⅜	6
—	32·0	1·2205	31/–		11⅜	6
1 1/4	—	1·2500	31/–		11⅜	6
—	32·0	1·2595	36/–	No. 4	12½	6
1 9/32	—	1·2812	36/–		12½	6
—	33·0	1·2992	36/–		12½	6
1 1/16	—	1·3125	36/–		12½	6
—	34·0	1·3386	39/–		13	6½
1 11/32	—	1·3437	39/–		13	6½
1⅜	—	1·3750	39/–		13	6½
—	35·0	1·3779	39/–		13	6½
1 13/32	—	1·4062	41/–		13	6½
—	36·0	1·4173	41/–		13	6½
1 7/16	—	1·4375	41/–		13	6½
—	37·0	1·4567	45/–		13½	7
1 15/32	—	1·4687	45/–		13½	7
—	38·0	1·4961	45/–		13½	7
1½	—	1·5000	45/–		13½	7
1 17/32	—	1·5312	49/–		13½	7
—	39·0	1·5354	49/–		13½	7
1 9/16	—	1·5625	49/–		13½	7
—	40·0	1·5748	53/–		13½	7⅛
1 19/32	—	1·5937	53/–		13½	7⅛
—	41·0	1·6142	53/–		13½	7⅛
1⅝	—	1·6250	53/–		13½	7⅛
—	42·0	1·6536	56/–		13½	7⅛
1 21/32	—	1·6562	56/–		13½	7⅛
1 11/16	—	1·6875	56/–		13½	7⅛
—	43·0	1·6929	56/–		13½	7⅛
1 23/32	—	1·7187	59/–		13½	7⅛
—	44·0	1·7323	59/–		13½	7⅛
1¾	—	1·7500	59/–		13½	7⅛
—	45·0	1·7717	61/–		13½	7⅛
1 25/32	—	1·7812	61/–		13½	7⅛
—	46·0	1·8110	61/–		13½	7⅛
1 13/16	—	1·8125	61/–		13½	7⅛
—	47·0	1·8504	65/–		14	7⅜
1⅞	—	1·8750	65/–		14	7⅜
1 29/32	—	1·8898	70/–		14	7⅜
—	48·0	1·9062	70/–		14	7⅜
1 15/16	—	1·9291	70/–		14	7⅜
—	49·0	1·9375	70/–		14	7⅜
1 31/32	—	1·9685	79/–		14½	7½
—	50·0	1·9687	79/–		14½	7½
2	—	2·0000	79/–		14½	7½

COMET ("A1") Carbon Steel Taper Socket Reamers (British Made)

Hand Reamers with Straight Flutes

For M.T. Socket No.	Price Each Roughing	Price Each Finishing	Diameters, Ins. Max.	Diameters, Ins. Min.	Length Overall Ins.	Length of Cutting Edges Ins.
0	6/9	8/–	·367	·2499	3½	2½
1	8/3	11/–	·492	·3673	3½	2½
2	12/–	16/–	·7195	·5697	4½	3
3	15/–	19/–	·963	·7748	5½	3⅝
4	23/–	28/–	1·257	1·0168	6½	4⅝
5	35/–	41/–	1·787	1·4713	8½	6
6	68/–	75/–	2·543	2·1129	11½	8½

Lancashire Broaches (British Made)



Best Cast Steel. All sizes measured at shoulder.

Sizes, Inches	1/4	1 1/32	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
Prices, per dozen	1/6	1/6	2/3	3/–	3/–	4/4	4/4	6/9	7/9	8/3	8/9	10/6	11/6	11/6	13/9
Sizes, Inches	1	1 1/32	1 1/16	1 3/32	1 1/8	1 5/32	1 3/16	1 7/32	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 9/16	1 5/8
Prices, per dozen	15/–	16/–	16/–	16/–	17/9	17/9	19/–	23/–	23/–	38/–	57/–				

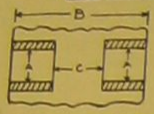
Nos.	1-3	4-9	10-14	15-19	20-27	28-31	32-39	40-44	45-49	50-52	53-74	75-80
Stubbs' Wire Gauge												

Prices on Application.

EXPANDING REAMERS

"Critchley" Expansion Aligning Reamers (Made in U.S.A.)

(With Expansion Pilots)



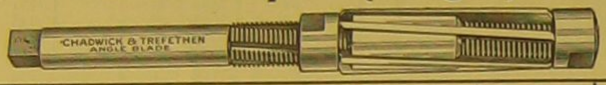
For reaming piston pin holes in true alignment with the crankshaft the "Critchley" Piston Pin Aligning Reamer with adjustable blades is a tool to be relied upon for good work.
The blades, which are of semi-high-speed steel, are interchangeable and the reamers can be supplied to cover the range shown below. Larger sizes can be supplied. Prices on application.

No.	Price Each	Extra Reamer Blades per Set of Six	Extra Pilot Shoes per Set of Three	Extra Nuts Each	A Hole Diam. Min.	A Hole Diam. Max.	B Hole Length Min.	B Hole Length Max.	C Max. Ins.
55	33/4	12/6	3/9	1/3			2	3½	1½
56	33/4	12/6	3/9	1/3			2	3½	1⅝
*57	33/4	12/6	4/5	1/6			2	4	2☆
58	37/6	15/-	4/5	1/6			2	4½	2☆
59	39/7	15/-	5/-	1/8			2	4½	2☆

No.	Price Each	Extra Reamer Blades per Set of Six	Extra Pilot Shoes per Set of Three	Extra Nuts Each	A Hole Diam. Min.	A Hole Diam. Max.	B Hole Length Min.	B Hole Length Max.	C Max. Ins.
60	41/8	15/-	5/-	1/8			2	4½	2☆
61	45/10	15/-	5/8	1/11		1☆	2	4½	2☆
62	50/-	18/9	5/8	1/11	1☆	1☆	2	4½	2☆
63	56/3	18/9	6/3	2/1	1☆	1☆	2	4½	2☆
64	62/6	18/9	6/3	2/1	1☆	1☆	2	4½	2☆

* No. 57 fits Piston Pin Bushings of Ford Cars.

"Critchley" (Angle) Six Blade Reamers (Made in U.S.A.)



The blades in these Reamers are set on an angle and produce a shearing cut.

No.	Range of Expansion Ins.	Price Each	Extra Blades Each	Extra Nuts Each
AA	to	18/9	1/3	1/3
A	,,	18/9	1/3	1/3
B	,,	18/9	1/3	1/3
C	,,	19/10	1/3	1/3
D	,,	19/10	1/3	1/3
E	,,	20/10	1/6	1/6
F	,,	20/10	1/6	1/6

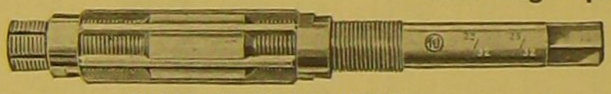
No.	Range of Expansion Ins.	Price Each	Extra Blades Each	Extra Nuts Each
G	to	22/11	1/8	1/8
H	,,	24/2	1/8	1/8
I	,,	29/2	1/11	1/11
J	,,	33/4	1/11	1/11
K	,,	41/8	2/1	2/4
L	,,	47/11	2/1	2/4

Sets in Hardwood Cases

Sizes, A to H ... ... £8 6 0 Sizes, A to K £13 10 0

COMET Expanding Reamers (British Made)

with High-Speed Steel Blades



Blades can be reground and the Reamer adjusted to maintain its correct size.
Standard bright finish all over.

SIX-BLADE TYPE REAMERS

Type and Symbol No.	Price	Blades Per Set	Nuts Each	Range, Ins.	Expansion Ins.	Overall Length Ins.	Effective Blade L'gth Ins.
6A	18/6	6/8	9d.	to	☆	5½	1
6B	18/6	6/8	9d.	,,	☆	6	1
6C	19/9	6/8	10d.	,,	☆	6	1
6D	19/9	7/6	10d.	,,	☆	6½	2
6E	21/6	7/6	11d.	,,	☆	7	2
6F	23/3	7/6	1/1	,,	☆	7½	2
6G	25/-	8/-	1/1	,,	☆	8	2
6H	25/-	8/6	1/1	,,	☆	8½	2
6J/3	28/3	11/-	1/1	,,	☆	9½	3
6K/3	32/6	12/-	1/3	,,	☆	9½	3
6L/3	37/-	13/-	2/-	,,	☆	10½	3
6M/3	43/-	16/8	2/3	,,	☆	11	4
6N/3	47/6	19/-	2/6	,, 2½	☆	11	4

FIVE-BLADE TYPE REAMERS

Type and Symbol No.	Price	Blades Per Set	Nuts Each	Range, Ins.	Expansion Ins.	Overall Length Ins.	Effective Blade L'gth Ins.
Aa/2	18/6	6/8	9d.	to	☆	5½	2
A	18/6	6/8	9d.	,,	☆	6	2
B	18/6	6/8	9d.	,,	☆	6½	2
C	19/9	6/8	10d.	,,	☆	6½	2
D/2	19/9	7/6	10d.	,,	☆	7	2
E	21/6	7/6	11d.	,,	☆	7½	2
F	23/3	7/6	1/1	,,	☆	8	3
H	25/-	8/6	1/1	,,	☆	8½	3
J/3	28/3	11/-	1/1	,,	☆	9½	3
K/3	32/6	12/-	1/3	,,	☆	9½	3
L/3	37/-	13/-	2/-	,,	☆	10½	3
M/3	43/-	16/8	2/3	,,	☆	11	4
N/3	47/6	16/8	2/6	,, 2½	☆	11	4

SETS OF REAMERS IN WOODEN CASE

SETS OF SIX-BLADE REAMERS

Symbol	Range, Ins.	Price
6A—6H	—1⅛ (8 reamers)	£8 5 0
6C—6H	—1⅛ (6 reamers)	6 7 6
6A—6F	—⅞ (6 reamers)	6 0 0
6J/3—6N/3	1⅛—2½ (5 reamers)	9 10 0

SETS OF FIVE-BLADE REAMERS

Aa—H	—1⅛ (8 reamers)	£8 5 0
B—H	—1⅛ (6 reamers)	6 7 6
Aa—E	—⅞ (6 reamers)	6 0 0
J/3—N/3	1⅛—2½ (5 reamers)	9 10 0

SETS OF FOUR-BLADE REAMERS

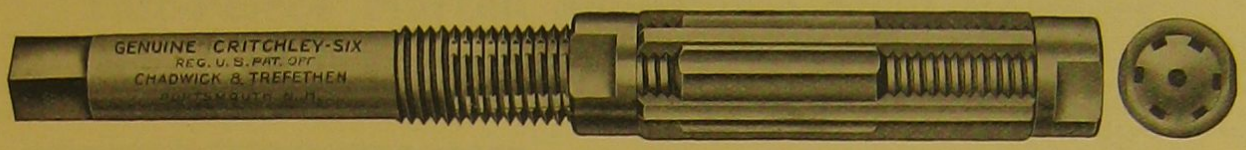
V—Aa	—⅝ (6 reamers)	£4 19 0
V—X	—⅝ (5 reamers)	4 0 6

FOUR BLADE TYPE REAMERS

Symbol	Price	Blades Per Set	Nuts Each	Range, Ins.	Overall Length Ins.	Effective Blade L'gth Ins.
V	15/6	4/6	9d.	to	4½	1
W	15/6	4/6	9d.	,,	4½	1
Z	15/6	4/6	9d.	,,	4½	1
Y	16/6	5/6	9d.	,,	4½	1
X	17/6	5/6	9d.	,,	5	1

EXPANDING REAMERS

"Critchley" Expanding Reamers—with Semi H.S.S. Blades (Made in U.S.A.)



"Critchley" Expanding Reamers cover a large range of sizes, and the adjustment available on each size is such that in many cases one Reamer will take the place of several solid type reamers, at the same time regrinding can be effected and the Reamer adjusted to maintain its correct size.

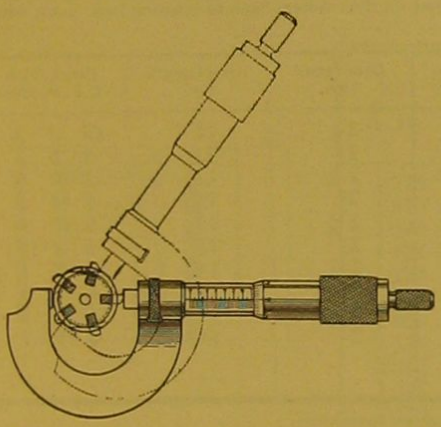
The cutters are fitted into a body having grooves with a tapering bottom, and at each end of the body a screw thread is cut, the centre portion being left intact in order to give strength.

The cutters are bevelled at each end, and are held in the grooves between two cupped nuts; by turning these nuts the cutters slide up or down in the grooves, and the size required is obtained.

Some of the Reamers are made with six blades, and others with four or five blades only, as shown in the table below.

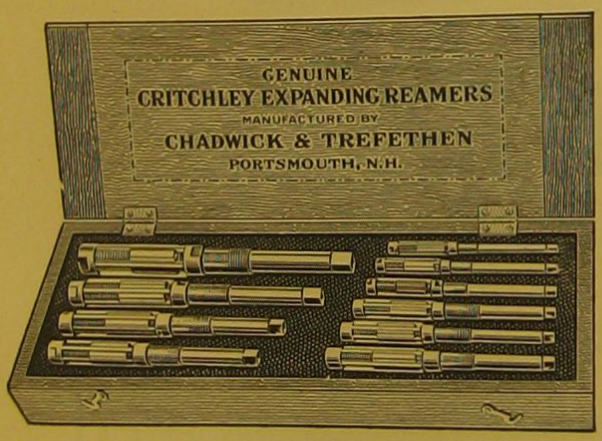
The blades are of semi-high-speed steel, and are interchangeable.

The 6 Blade Reamers are more **QUICKLY SET** to size than the original five-blade type.



How to Measure the "Critchley" Five-Blade Reamer

To find out whether the Reamer is correctly set it is only necessary to obtain the size of the body, caliper over body and one blade, and then add half the difference between the size of body and hole to be reamed.



Sets of "Critchley" Reamers in Wooden Boxes

Nos.	104 to 110	(7 Reamers),	£5	2	1	per set
,,	00 ,, 1½	(7 ,,)	6	17	7	,,
,,	20 ,, 26	(7 ,,)	6	17	7	,,
,,	00 ,, 4	(10 ,,)	10	12	2	,,
,,	20 ,, 29	(10 ,,)	10	13	9	,,
,,	00 ,, 8	(14 ,,)	18	10	0	,,
,,	20 ,, 33	(14 ,,)	19	19	2	,,

Sizes and Prices

Six-Blade Type

No.	Price	Extra Blades Per Set	Extra Adjusting Nuts Each	Begins at Diam. Ins.	Expands to Diam. Ins.	Range of Expan. Ins.	Length of Cutter Ins.	Full Length Ins.
109	16/8	7/6	1/3	13/32	7/16	1/32	1 33/32	4 5/8
110	16/8	7/6	1/3	7/16	15/32	1/32	1 33/32	5 1/8
19	18/9	7/6	1/3	27/64	29/64	1/32	1 3/4	5 1/4
20	18/9	7/6	1/3	7/16	1/2	1/16	1 3/4	5 1/4
21	18/9	7/6	1/3	1/2	9/16	1/16	1 3/4	5 1/2
22	18/9	7/6	1/3	9/16	5/8	1/16	1 7/8	5 3/4
23	19/10	7/6	1/3	5/8	11/16	1/16	2 1/4	6 1/2
24	19/10	7/6	1/3	11/16	3/4	1/16	2 1/4	6 3/4
25	20/10	8/9	1/6	3/4	13/16	1/16	2 5/8	7
26	20/10	8/9	1/6	13/16	7/8	1/16	2 5/8	7 1/4
27	22/11	10/-	1/8	7/8	1	1/8	2 7/8	8
28	24/2	10/-	1/8	1	1 1/8	1/8	3 1/4	9
29	29/2	11/3	1/11	1 1/8	1 1/4	1/8	3 1/2	10
30	33/4	11/3	1/11	1 1/4	1 7/16	3/16	3 7/8	11
31	41/8	13/9	2/1	1 7/16	1 5/8	3/16	4 1/8	12
32	47/11	16/3	2/6	1 5/8	1 7/8	1/4	4 1/2	14
7	41/3	15/-	2/4	1 11/16	1 15/16	1/4	4 1/4	14
33	62/6	17/6	2/9	1 7/8	2 3/16	5/16	5 3/8	16
8	47/11	17/6	2/6	1 15/16	2 1/4	5/16	4 3/4	16
34	75/-	20/-	3/2	2 3/16	2 9/16	3/8	5 1/4	18
9	68/9	23/9	3/4	2 1/4	2 5/8	3/8	5 1/4	18
35	91/8	25/-	4/2	2 9/16	3	7/16	6 1/4	20
10	83/4	27/6	4/7	2 5/8	3 1/16	7/16	6 1/4	20
36	108/4	30/-	5/-	3	3 1/2	1/2	7 1/4	22
11	104/2	30/-	5/-	3 1/16	3 9/16	1/2	7	22
37	125/-	33/9	5/8	3 1/2	4 1/16	9/16	8	24
12	125/-	35/-	5/10	3 9/16	4 1/8	9/16	7 3/4	24

Five-Blade Type

00	18/9	6/3	1/3	15/32	17/32	1/16	1 3/4	5 1/2
00½	18/9	6/3	1/3	17/32	9/16	1/16	1 3/4	5 5/8
00½	18/9	6/3	1/3	9/16	5/8	1/16	1 3/4	5 3/4
0	19/10	6/3	1/3	5/8	11/16	1/16	2 1/2	6 1/2
0½	19/10	6/3	1/3	11/16	3/4	1/16	2 1/2	6 3/4
1	20/10	6/3	1/3	3/4	13/16	1/16	2 5/8	7
1½	20/10	7/6	1/3	13/16	7/8	1/16	2 5/8	7 1/4
2	22/11	7/6	1/3	7/8	31/32	3/32	2 3/4	8
3	24/2	7/6	1/3	31/32	1 1/8	3/32	3	9
4	27/6	8/4	1/6	1 1/8	1 9/32	3/32	3 1/4	10
5	31/3	9/2	1/8	1 9/32	1 13/32	3/16	3 3/4	11
6	37/6	10/5	1/11	1 13/32	1 7/16	3/32	4	12

Four-Blade Type

104	12/6	4/4	1/1	1/4	9/32	1/32	1 11/32	3 1/8
105	12/6	4/4	1/1	9/32	5/16	1/32	1 11/32	3 3/8
106	14/7	4/4	1/1	5/16	11/32	1/32	1 1/2	3 3/4
107	14/7	4/4	1/1	11/32	3/8	1/32	1 1/2	4 1/16
108	14/7	4/4	1/1	3/8	13/32	1/32	1 1/2	4 3/8

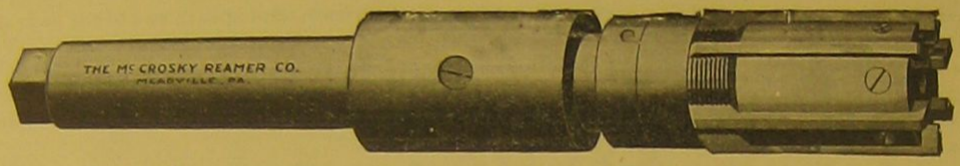
McCrosky "Super" High-Speed Adjustable Reamers

(Made in U.S.A.)

The McCrosky range of "Super" Reamers possesses the combined advantages of both solid and adjustable reamers. They are of high-grade finish and have large adjustment to provide for wear and regrinding. **The blades are interchangeable** and renewable at small cost. Each blade is held in exact position by a powerful positive lock, and is adjustable in a forward direction. This feature ensures the cutting end of the blade always being in advance of the reamer body and bottoming operations are always possible.

"Super" Hand Reamers, Fig. 18

With Carbon or H.S.S. Blades



In these Hand Reamers the blades are long and unevenly spaced. The guide sleeve is hardened and ground, and is held in any position along the reamer shank by a headless set screw. This sleeve may be removed when reaming short holes or left loose on the reamer shank in reaming long holes, when it remains stationary in the hole being reamed. The square end of shank is hardened.

Diameter Ins.	Total Length Ins.	Price with C.S.Blades	Diameter Ins.	Total Length Ins.	Price with C.S. Blades	Diameter Ins.	Total Length Ins.	Price with C.S. Blades
15/16	7 1/4	£1 16 8	1 11/16	10 1/4	£3 5 8	2 7/16	13	£5 3 2
1	7 1/4	1 18 4	1 3/4	10 1/4	3 8 9	2 1/2	13	5 6 3
1 1/16	7 3/4	2 0 0	1 13/16	10 3/4	3 11 11	2 9/16	13 3/8	5 10 5
1 1/8	8	2 1 8	1 7/8	10 3/4	3 15 0	2 5/8	13 3/8	5 14 7
1 3/16	8 3/8	2 3 9	1 15/16	11 1/4	3 18 2	2 11/16	13 7/8	5 18 9
1 1/4	8 3/8	2 5 10	2	11 1/4	4 1 3	2 3/4	13 7/8	6 2 11
1 5/16	9	2 7 11	2 1/16	11 5/8	4 4 5	2 13/16	14 3/8	6 7 1
1 3/8	9	2 10 0	2 1/8	11 5/8	4 7 6	2 7/8	14 3/8	6 11 3
1 7/16	9 1/2	2 13 2	2 3/16	12 1/8	4 10 8	2 15/16	14 7/8	6 15 5
1 1/2	9 1/2	2 16 3	2 1/4	12 1/8	4 13 9	3	14 7/8	6 19 7
1 9/16	9 7/8	2 19 5	2 5/16	12 5/8	4 16 11			
1 5/8	9 7/8	3 2 6	2 3/8	12 5/8	5 0 0			

"Super" Hand Reamers with High-Speed Steel blades. Prices on application.

"Super" High-Speed Chucking Reamers, Figs. 20 and 21

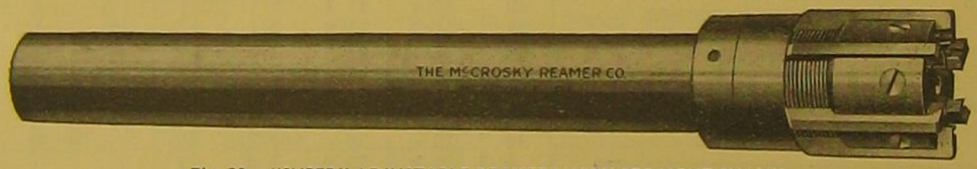


Fig. 20.—"SUPER" ADJUSTABLE REAMERS WITH STRAIGHT SHANK

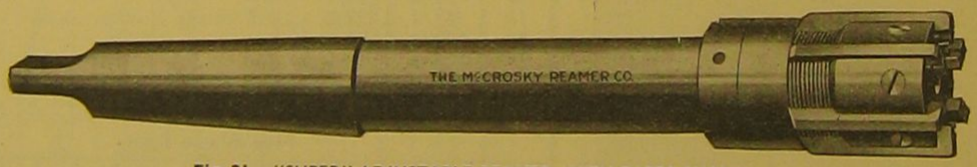


Fig. 21.—"SUPER" ADJUSTABLE REAMER, WITH TAPER SHANK.

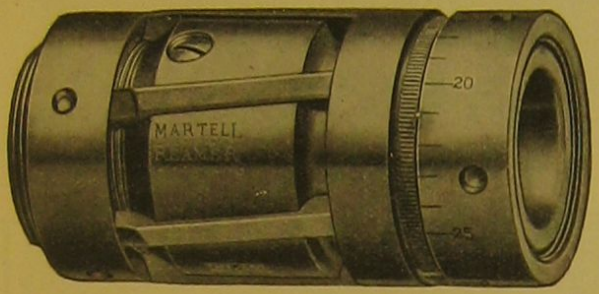
The shank and body of these Reamers give great strength, being made from one solid piece of steel. The blades are unevenly spaced to prevent chattering

Diameter Ins.	Total Length Ins.	Price		Diameter Ins.	Total Length Ins.	Price		Diameter Ins.	Total Length Ins.	Price	
		Fig. 20	*Fig. 21			Fig. 20	*Fig. 21			Fig. 20	*Fig. 21
15/16	10	£2 7 11	£2 10 10	1 11/16	14	£3 15 0	£4 0 10	2 7/16	15 1/2	£5 5 5	£6 0 0
1	10	2 10 0	2 13 4	1 3/4	14	3 17 6	4 3 4	2 1/2	15 1/2	5 8 4	6 3 4
1 1/16	10	2 12 1	2 15 10	1 13/16	14	4 0 0	4 6 8	2 9/16	15 1/2	5 12 6	6 11 3
1 1/8	10	2 14 2	2 18 4	1 7/8	14	4 2 6	4 10 0	2 5/8	15 1/2	5 18 9	6 16 6
1 3/16	11	2 16 3	3 0 10	1 15/16	14 1/2	4 5 0	4 13 4	2 11/16	15 1/2	6 5 0	7 1 8
1 1/4	11	2 18 4	3 3 4	2	14 1/2	4 7 6	4 16 8	2 3/4	15 1/2	6 11 3	7 7 11
1 5/16	12	3 0 5	3 5 10	2 1/16	15	4 10 0	5 0 0	2 13/16	16	6 17 6	7 14 2
1 3/8	12	3 2 6	3 8 4	2 1/8	15	4 12 6	5 3 4	2 7/8	16	7 3 9	8 0 5
1 7/16	12	3 5 0	3 10 10	2 3/16	15	4 15 0	5 6 8	2 15/16	16	7 12 1	8 6 8
1 1/2	12	3 7 6	3 13 4	2 1/4	15	4 17 6	5 10 0	3	16	7 18 4	8 12 11
1 9/16	13	3 10 0	3 15 10	2 5/16	15	5 0 0	5 13 4				
1 5/8	13	3 12 6	3 18 4	2 3/8	15	5 2 6	5 16 8				

*Fig. 21 Reamers:—Sizes 11/16 to 1 7/8 in. have No. 3 Morse Taper Shanks; 1 15/16 to 2 3/8 in., No. 4; 2 7/16 to 3 in., No. 5.

Taft-Peirce Martell Adjustable Shell Reamers No. 9710 (Made in U.S.A.)

Manufacturing Type

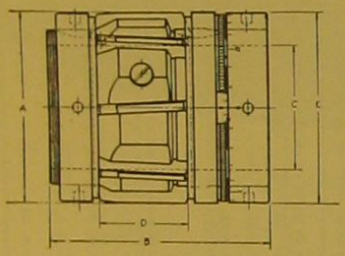


Martell Reamers are precision tools built to extremely accurate specifications of high-grade alloy and tool steels. They are particularly adapted to the automotive industry for main and camshaft bearing and crankshaft work.

This style is designed on the exclusive wedge-adjusting principle. Small case-hardened wedges are inserted in the slots under the blades and provide an accurate means of adjusting and maintaining the desired diameter.

Range of adjustment is considerable and permits frequent regrinding of blades. Blades can also be replaced when necessary.

A micrometer scale is provided to assist in adjusting.



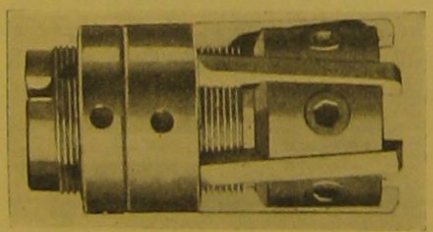
Sizes

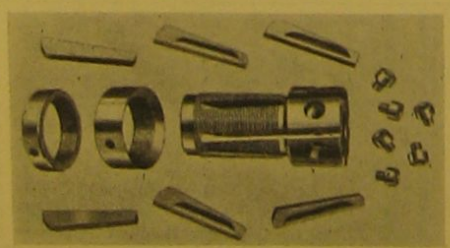
Size Diam. A, Ins.	Length B Ins.	Diam. of Hole C, Ins.	Blades D Ins.	Diam. Graduated Ring E, Ins.	Size Diam. A, Ins.	Length B Ins.	Diam. of Hole C, Ins.	Blades D Ins.	Diam. Graduated Ring E, Ins.
1·250	3·687	0·625	1·625	1·225	2·750	3·687	1·750	1·625	2·725
1·375	3·687	0·625	1·625	1·350	2·875	3·687	1·875	1·625	2·850
1·500	3·687	0·750	1·625	1·475	3·000	3·687	1·875	1·625	2·975
1·625	3·687	0·875	1·625	1·600	3·125	4·062	2·000	1·625	3·100
1·750	3·687	1·000	1·625	1·725	3·250	4·062	2·000	1·625	3·225
1·875	3·687	1·125	1·625	1·850	3·375	4·062	2·000	1·625	3·350
2·000	3·687	1·250	1·625	1·975	3·500	4·062	2·000	1·625	3·475
2·125	3·687	1·375	1·625	2·100	3·625	4·062	2·250	1·625	3·600
2·250	3·687	1·500	1·625	2·225	3·750	4·062	2·250	1·625	3·725
2·375	3·687	1·500	1·625	2·350	3·875	4·062	2·250	1·625	3·850
2·500	3·687	1·625	1·625	2·475	4·000	4·062	2·250	1·625	3·975
2·625	3·687	1·750	1·625	2·600					

Prices on Application.

Taft-Peirce Martell Shell Reamer No. 9725 (Made in U.S.A.)

For Machine Reaming





SHOWING THE REAMER DIS-ASSEMBLED

This Shell Reamer is especially designed for general purpose machine and production work. **It is very rugged in construction,** which makes it highly effective both as a roughing and finishing reamer, and ensures an unusually long life.
Blades are set at opposing angles, eliminating chatter and insuring accurately round holes.

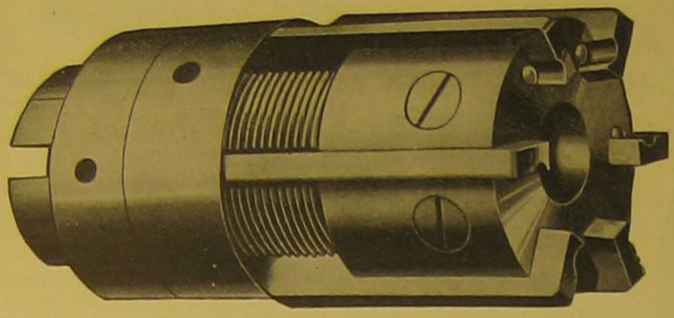
The blades are made of high speed steel and the bodies of a special high-grade alloy steel, properly heat treated. As it is of unusually heavy construction, it is practically unbreakable. **Blades are replaceable,** as required.

This style of reamer has a very wide range of adaptability in machine shop work and is recommended for those jobs where the ordinary expansion reamer is unsatisfactory.

The No. 9275 Reamer is supplied to order only and to suit individual requirements.

Prices on application.

ADJUSTABLE SHELL REAMERS



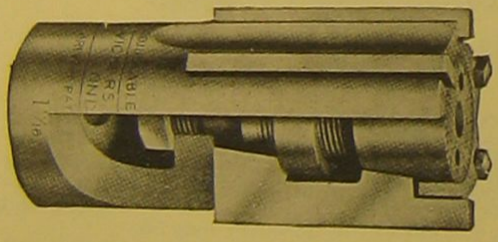
McCROSKY "Super" High-Speed Shell Reamer (Made in U.S.A.) Fig. 24

These Reamers are regularly furnished with taper holes $\frac{1}{8}$ inch per foot.

Diam. Ins.	Length Overall Ins.	Hole Ins.	Price Each	Diam. Ins.	Length Overall Ins.	Hole Ins.	Price Each	Diam. Ins.	Length Overall Ins.	Hole Ins.	Price Each	Diam. Ins.	Length Overall Ins.	Hole Ins.	Price Each
1 3/16	2 3/4	3/8	£2 10 0	2 7/16	4 1/8	1	£4 13 9	3 11/16	4 3/16	1 5/8	£8 15 3	4 7/8	4 5/16	2 1/4	£12 18 0
1 1/4	2 13/16	3/8	2 12 1	2 1/2	4 1/2	1	4 16 11	3 3/4	4 3/16	1 5/8	8 19 7	4 15/16	4 1/2	2 1/4	13 2 9
1 5/16	2 15/16	3/8	2 14 2	2 9/16	4 7/16	1	5 0 0	3 13/16	4 1/16	1 7/8	9 4 0	5	4 1/4	2 1/4	13 7 1
1 3/8	2 15/16	1/2	2 16 3	2 5/8	4 7/16	1	5 3 2	3 7/8	4 1/16	1 7/8	9 8 4	5 1/16	4 1/4	2 1/4	13 11 6
1 7/16	3 1/16	1/2	2 18 4	2 11/16	4 7/16	1 1/8	5 6 3	3 15/16	4 1/8	1 7/8	9 12 9	5 1/8	4 1/4	2 1/4	13 15 10
1 1/2	3 1/16	1/2	3 0 5	2 3/4	4 7/16	1 1/8	5 10 5	4	4 1/8	1 7/8	9 17 1	5 3/16	4 3/8	2 1/4	14 0 3
1 9/16	3 1/8	5/8	3 2 6	2 13/16	4 1/2	1 1/4	5 14 7	4 1/16	4 3/16	2	10 1 6	5 1/4	4 3/8	2 1/4	14 4 7
1 5/8	3 1/8	5/8	3 4 7	2 7/8	4 1/2	1 1/4	5 18 9	4 1/8	4 3/16	2	10 5 10	5 5/16	4 1/4	2 1/2	14 9 0
1 11/16	3 1/8	5/8	3 6 8	2 15/16	4 9/16	1 3/8	6 2 11	4 3/16	4 1/8	2	10 10 3	5 3/8	4 1/4	2 1/2	14 13 4
1 3/4	3 1/8	5/8	3 8 9	3	4 9/16	1 3/8	6 7 1	4 1/4	4 1/8	2	10 14 7	5 7/16	4 1/4	2 1/2	14 17 9
1 13/16	3 1/2	5/8	3 10 10	3 1/16	4 1/2	1 3/8	6 11 6	4 5/16	4 1/8	2	10 19 0	5 1/2	4 1/2	2 1/2	15 2 1
1 7/8	3 1/2	5/8	3 12 11	3 1/8	4 1/2	1 3/8	6 15 10	4 3/8	4 1/8	2	11 3 4	5 9/16	4 3/8	2 1/2	15 6 6
1 15/16	3 5/8	3/4	3 15 0	3 3/16	4 9/16	1 3/8	7 0 3	4 7/16	4 3/16	2	11 7 9	5 5/8	4 3/8	2 1/2	15 10 10
2	3 5/8	3/4	3 17 1	3 1/4	4 9/16	1 3/8	7 4 7	4 1/2	4 3/16	2	11 12 1	5 11/16	4 1/2	2 1/2	15 15 3
2 1/16	4 1/16	3/4	3 19 2	3 5/16	4 11/16	1 1/2	7 9 0	4 9/16	4 3/16	2	11 16 6	5 3/4	4 1/4	2 1/2	15 19 7
2 1/8	4 1/16	3/4	4 1 3	3 3/8	4 11/16	1 1/2	7 13 4	4 5/8	4 3/16	2	12 0 10	5 13/16	4 1/4	2 1/2	16 4 0
2 3/16	4	3/4	4 3 4	3 7/16	4 9/16	1 1/2	7 17 9	4 11/16	4 1/4	2 1/4	12 5 3	5 7/8	4 1/4	2 1/2	16 8 4
2 1/4	4	3/4	4 5 5	3 1/2	4 9/16	1 1/2	8 2 1	4 3/4	4 1/4	2 1/4	12 9 7	5 15/16	4 3/8	2 1/2	16 12 9
2 5/16	4 1/16	7/8	4 7 6	3 9/16	4 5/8	1 1/2	8 6 6	4 13/16	4 5/16	2 1/4	12 14 0	6	4 3/8	2 1/2	16 17 1
2 3/8	4 1/16	7/8	4 10 8	3 5/8	4 5/8	1 1/2	8 10 10								

Arbors for "Super" Shell Reamers, with Straight or Taper Shanks, can be supplied to fit Reamer sizes 1 $\frac{3}{16}$ to 6 ins. Prices and particulars sent on request.

Vickers' Adjustable Reamer (British Made)



The Vickers Adjustable Reamer consists of a steel shell, the hardened steel cone bolt and blades, and the retaining ring and lock nut on the cone bolt. The blades are well backed up at the sides, and the cutting face left clear. Each small division on the face of the cone bolt equals 1/4000 inch variation in diameter and each large division 1/1000 inch.

Size Ins.	Price Each with H.S.S. Blades	Extra H.S.S. Blades Price Per Set	Size Ins.	Price Each with H.S.S. Blades	Extra H.S.S. Blades Price Per Set	Size Ins.	Price Each with H.S.S. Blades	Extra H.S.S. Blades Price Per Set
1	£1 12 0	£0 12 0	1 11/16	£2 2 0	£0 17 0	2 3/8	£3 10 0	£0 18 0
1 1/16	1 12 0	0 12 0	1 3/4	2 5 0	0 17 0	2 7/16	3 10 0	0 18 0
1 1/8	1 14 0	0 12 0	1 13/16	2 5 0	0 17 0	2 1/2	3 15 0	1 0 0
1 3/16	1 14 0	0 12 0	1 7/8	2 8 0	0 17 0	2 9/16	3 15 0	1 0 0
1 1/4	1 16 0	0 16 0	1 15/16	2 8 0	0 17 0	2 5/8	3 15 0	1 0 0
1 5/16	1 16 0	0 16 0	2	2 12 0	0 18 0	2 11/16	3 15 0	1 0 0
1 3/8	1 18 0	0 16 0	2 1/16	2 12 0	0 18 0	2 3/4	4 5 0	1 0 0
1 7/16	1 18 0	0 16 0	2 1/8	2 18 0	0 18 0	2 13/16	4 5 0	1 0 0
1 1/2	2 0 0	0 17 0	2 3/16	2 18 0	0 18 0	2 7/8	4 5 0	1 0 0
1 9/16	2 0 0	0 17 0	2 1/4	3 2 0	0 18 0	2 15/16	4 5 0	1 0 0
1 5/8	2 2 0	0 17 0	2 5/16	3 2 0	0 18 0	3	5 0 0	1 10 0

Larger sizes and Reamers to millimetre dimensions also made. Prices on application.

HIGH SPEED STEEL MILLING CUTTERS

Fig. 1. REGULAR TYPE CUTTER

COMET H.S.S. Plain Cylindrical Milling Cutters (British Made)

Containing 18 per cent Tungsten.
Regular and High Power Type

These cutters are regularly made in the sizes listed below in styles as Figures 1 and 2. Cutters of ¾ inch wide face and over are furnished with Spiral Teeth unless otherwise specified.

Straight teeth will be made to order.

The high power type cutters shown in Fig. 2 have a shearing action and the **wide spaced undercut teeth** afford ample chip room. These cutters, when specified, can be supplied ground on face of teeth, at extra cost.

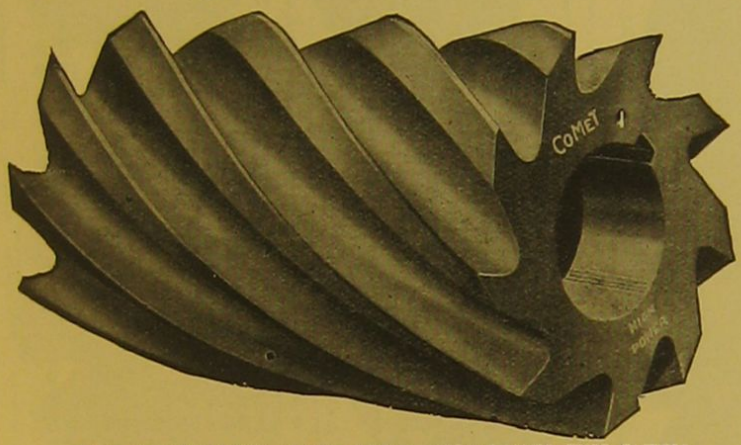


Fig. 2. COARSE PITCH, QUICK SPIRAL, HIGH POWER TYPE CUTTER

Standard Holes.

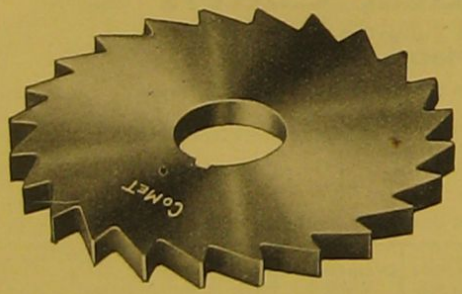
2½-inch diameter Cutters ... ... 1-inch hole
3, 3½ and 4-inch diameter Cutters ... 1¼-inch ,,
4½-inch diameter Cutters ... ... 1½-inch ,,

Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.
2½	£2 2 6	1	3½	£4 0 0	1½	4	£14 0 0	5
	2 11 6	1½		5 0 0	2		16 15 0	6
	3 2 0	2		6 0 0	2½		19 10 0	7
	3 12 6	2½		7 0 0	3		22 4 0	8
	4 3 0	3		8 0 0	3½	4½	7 13 6	2
	4 13 6	3½		9 0 0	4		9 5 0	2½
	5 4 0	4		11 1 0	5		10 17 0	3
3	2 13 6	1		13 2 0	6		12 10 0	3½
	3 7 6	1½		15 5 0	7		14 3 0	4
	4 1 0	2	4	5 0 0	1½		17 9 0	5
	4 16 0	2½		6 4 6	2		20 15 0	6
	5 6 0	3		7 9 0	2½		24 6 0	7
	6 7 0	3½		8 14 0	3		27 16 0	8
	7 3 6	4		9 19 6	3½		31 10 0	9
	8 19 0	5		11 6 0	4			
	10 15 0	6						

COMET H.S.S. Slotting Cutters

Containing 18 per cent Tungsten

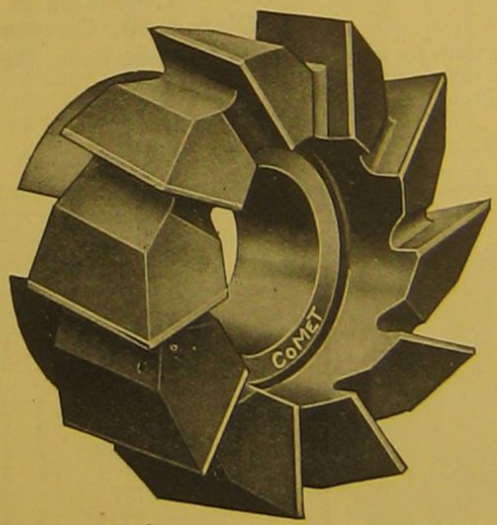
Sides ground concave to give clearance.



Standard Holes

2½, 3, 3½ and 4 in. diam. Cutters ... 1-inch hole
5 and 6-inch diameter Cutters ... 1¼-inch ,,

Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.
2½	£1 4 0	¼	3½	£2 4 0	½	5	£3 2 6	7/16
	1 5 6	5/16		2 8 0	5/8		3 6 0	½
	1 7 0	3/8		2 12 0	¾		3 15 0	5/8
	1 8 6	7/16		2 17 0	⅞		4 4 0	¾
	1 10 0	½	4	2 1 0	¼		4 13 0	⅞
3	1 7 0	¼		2 4 0	5/16		5 3 0	1
	1 9 0	5/16		2 7 0	⅜	6	3 10 0	¼
	1 11 0	⅜		2 10 0	7/16		3 15 0	5/16
	1 13 0	7/16		2 13 0	½		4 1 0	⅜
	1 15 0	½		2 19 0	⅝		4 6 0	7/16
	1 19 0	5/8		3 6 0	¾		4 11 0	½
	2 4 0	¾		3 13 0	⅞		5 3 0	5/8
3½	1 14 0	¼		4 0 0	1		5 16 0	¾
	1 16 0	5/16	5	2 14 0	¼		6 8 0	⅞
	1 18 0	⅜		2 16 6	5/16		7 1 0	1
	2 0 0	7/16		2 19 0	⅜			



COMET H.S.S. Coarse Pitch Face Cutters

These cutters have teeth on the periphery and one end, and the length of cutting edges on the periphery equal to, or less than half the diameter of the cutter.

Can be furnished, if so desired, ground on face of teeth, at extra cost.

Diam. Ins.	Price Each	Length Overall Ins.	Diam. of Hole Ins.	Diam. of Recess Ins.	Length of Hole Ins.	Length of Boss In.	Width of Driving Slot In.	Depth of Driving Slot In.	Diam. of Boss Ins.
1¾	£2 3 6	1¼	¾	1 1/16	¾	3/8	1/8	¼	1 7/16
2	2 8 6	1¼	¾	1 1/16	¾	3/8	1/8	¼	1 7/16
2½	2 17 6	1¼	¾	1 5/16	¾	3/8	1/8	¼	1¾
3	4 7 6	1 11/16	1 1/16	1 5/16	1 1/16	7/16	1/8	¼	2¼
4	6 12 0	1¾	1 1/16	2	1 1/16	7/16	1/8	¼	2¾
5	10 10 0	2	1½	3	1 5/16	½	1/8	¼	3½

All Sizes shown above are to B.S.I. Specification.

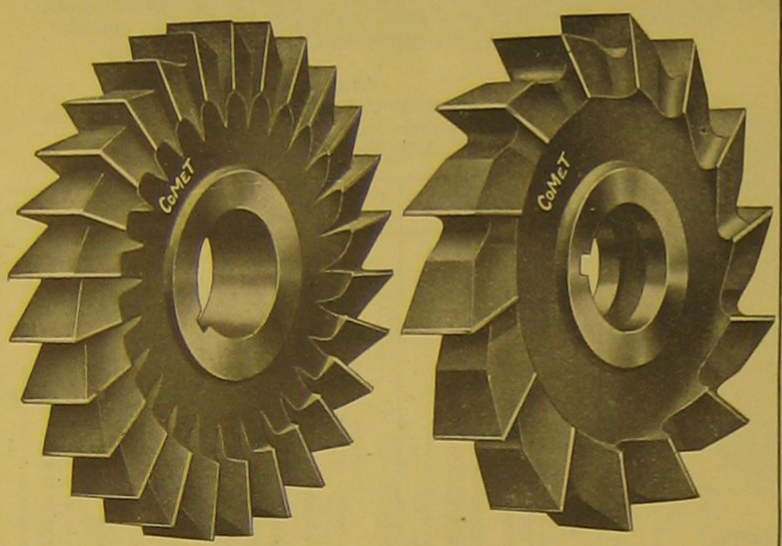
COMET
H.S.S. Side and Face Cutters or "Straddle Mills" (British Made)

Containing 18 per cent Tungsten

These Cutters have teeth on the periphery and both sides.
Fig. 1 shows the old type Cutter with medium pitch of teeth.
Fig. 2 is a heavy duty Cutter in which the form of tooth is designed to provide for the extra strain set up by increased feeds.

Standard Holes

2½, 3, 3½ and 4-inch diam. Cutters	1-inch hole
5 and 6-inch diameter Cutters	1¼ ,, ,,
7 and 8-inch ,, ,, ...	1½ ,, ,,



Regular Type

Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.	Dia. Ins.	Price	Face Ins.
2½	£1 18 0	¼	4	£2 19 0	¼	6	£8 5 0	1
	1 19 6	5/16		3 5 0	3/8		9 15 0	1¼
	2 1 0	3/8		3 11 0	1/2			
	2 4 0	1/2		3 17 0	5/8	7	7 8 0	1/2
3	2 2 0	¼		4 4 0	3/4		8 4 0	3/4
	2 4 0	5/16		4 11 0	7/8		9 0 0	7/8
	2 6 0	3/8		4 18 0	1		9 17 0	1
	2 10 0	1/2	5	4 7 0	1/2		10 14 0	1¼
	2 14 0	5/8		4 16 0	3/4		12 10 0	1½
3½	2 10 0	¼		5 5 0	7/8	8	10 8 0	5/8
	2 12 0	5/16		5 14 0	1		11 11 0	3/4
	2 14 0	3/8		6 4 0			12 14 0	7/8
	2 16 0	7/16	6	5 15 0	1/2		13 17 0	1
	3 0 0	1/2		6 7 6	3/4		16 2 0	1¼
	3 4 0	5/8		7 0 0	7/8		18 8 0	1½
	3 8 0	3/4		7 12 6	1			

Staggered Tooth Type

3	£2 12 6	¼	4	£3 18 0	3/8	6	£6 1 0	3/8
	2 15 0	5/16		4 4 0	1/2		6 13 0	1/2
	2 17 0	3/8		4 10 0	5/8		7 5 0	5/8
	3 1 0	1/2					7 18 0	3/4
4	3 12 0	¼	5	4 15 0	3/8			
	3 15 0	5/16		5 4 0	1/2			
				5 13 0	5/8			

COMET H.S.S. Involute Gear Cutters (British Made)

Containing 18 per cent Tungsten

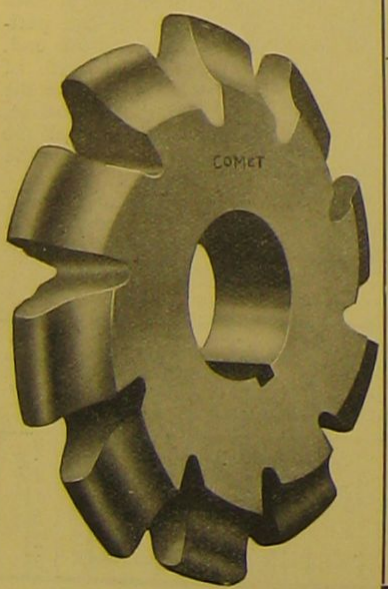
Diametral, Circular and Metric Pitches

With annular teeth for cutting a single gear tooth space. Eight Cutters are made for each pitch, each Cutter having a specified range, as follows:—

No. **1** will cut wheels from 135 teeth to a rack.
,, **2** ,, ,, ,, ,, 55 ,, ,, 134 teeth.
,, **3** ,, ,, ,, ,, 35 ,, ,, 54 ,,
,, **4** ,, ,, ,, ,, 26 ,, ,, 34 ,,

No. **5** will cut wheels from 21 teeth to 25 teeth.
,, **6** ,, ,, ,, ,, 17 ,, ,, 20 ,,
,, **7** ,, ,, ,, ,, 14 ,, ,, 16 ,,
,, **8** ,, ,, ,, ,, 12 ,, ,, 13 ,,

When ordering, always specify pitch, number of Cutter, and size of hole.



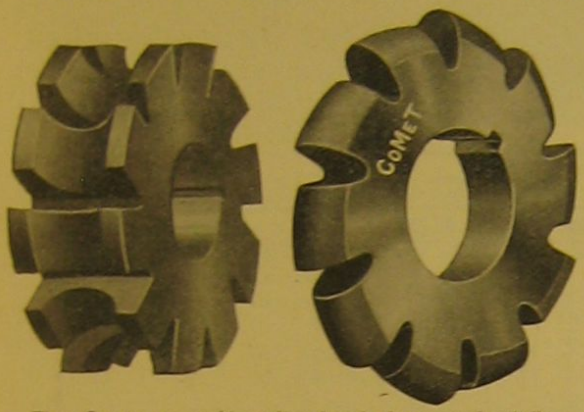
Diametral Pitch	Circular Pitch	Module m/m.	Price Each	Diam. of Cutter Ins.	Hole, Ins.	Diametral Pitch	Circular Pitch	Module m/m.	Price Each	Diam. of Cutter Ins.	Hole, Ins.
48	—	½	£2 3 0			6	½	4	£3 10 0		
40	—	—	2 3 0			5	5/8	5	4 8 0		1
36	—	—	2 3 0			4	¾	6	5 10 0		
32	—	¾	2 3 0								
						8	⅜	3	3 5 0		
30	—	—	2 3 0			7	7/16	3½	3 10 0		
28	—	—	2 3 0			6	½	4	3 18 0		
26	—	—	2 3 0			5	5/8	5	4 18 0		1¼
24	⅛	1	2 3 0			4	¾	6	5 18 0		
						3½	⅞	7	6 18 0		
22	—	—	2 3 0		1	3	1	8	7 18 0		
20	—	1¼	2 4 0								
18	—	—	2 4 0			—	1⅛	9	10 0 0		
16	3/16	1½	2 5 0			2½	1¼	10	11 0 0		1½
						—	—	11	12 5 0		
14	—	1¾	2 6 0			2	1½	12	13 0 0		
12	¼	2	2 7 0								
11	—	2¼	2 9 0			1¾	1¾	14	19 0 0		1¾
10	5/16	2½	2 11 0			1½	2	16	24 0 0		
9	—	2¾	2 14 0			1¼	—	—	32 0 0		2
8	⅜	3	2 18 0			1	—	—	45 0 0		
7	7/16	3½	3 3 0								

All sizes shown above are to B.S.I. Specification.

HIGH SPEED STEEL MILLING CUTTERS

COMET H.S.S. Convex and Concave Cutters (British Made)

Containing 18 per cent. Tungsten



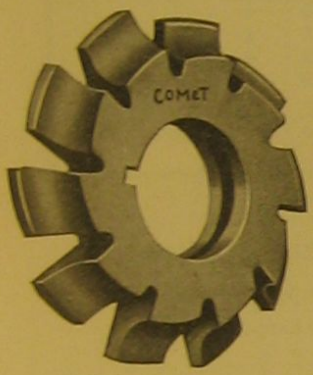
These Cutters are machine relieved, and when ground radially retain their form.

Diam. of Circle Ins.	Convex Price Each	Concave Price Each	Diam. of Cutter Ins.	Size of Hole In.	Diam. of Circle Ins.	Convex Price Each	Concave Price Each	Diam. of Cutter Ins.	Size of Hole In.
$\frac{1}{8}$	£1 19 0	£2 6 0	$2\frac{1}{4}$	1	$\frac{3}{4}$	£3 10 0	£5 2 0	3	1
$\frac{3}{16}$	2 1 0	2 8 6	$2\frac{1}{4}$	1	$\frac{13}{16}$	4 0 0	6 2 0	$3\frac{1}{4}$	1
$\frac{1}{4}$	2 3 0	2 11 0	$2\frac{1}{4}$	1	$\frac{7}{8}$	4 5 0	6 4 0	$3\frac{1}{4}$	1
$\frac{5}{16}$	2 5 6	2 17 0	$2\frac{1}{2}$	1	$\frac{15}{16}$	4 15 0	7 5 0	$3\frac{1}{2}$	1
$\frac{3}{8}$	2 7 6	3 1 0	$2\frac{1}{2}$	1	1	5 0 0	7 7 0	$3\frac{1}{2}$	1
$\frac{7}{16}$	2 9 6	3 5 6	$2\frac{1}{2}$	1	$1\frac{1}{8}$	6 8 0	9 0 0	4	$1\frac{1}{4}$
$\frac{1}{2}$	2 11 6	3 10 0	$2\frac{1}{2}$	1	$1\frac{1}{4}$	7 1 0	9 12 0	4	$1\frac{1}{4}$
$\frac{9}{16}$	2 16 6	4 2 0	$2\frac{3}{4}$	1	$1\frac{3}{8}$	8 2 0	11 0 0	$4\frac{1}{2}$	$1\frac{1}{4}$
$\frac{5}{8}$	2 19 0	4 4 0	$2\frac{3}{4}$	1	$1\frac{1}{2}$	8 15 0	12 5 0	$4\frac{1}{4}$	$1\frac{1}{4}$
$\frac{11}{16}$	3 7 0	5 0 0	3	1					

COMET H.S.S. Corner Rounding Cutters

(British Made)

Containing 18 per cent. Tungsten



SINGLE RIGHT-HAND

DOUBLE

These Cutters have side and radial clearances; their outline remains unchanged when ground. Left-hand Single Cutters can be supplied at same prices as Right-hand, when desired.

Radius of Circle In.	Single Price Each	Double Price Each	Diam. of Cutter Ins.	Thickness Single In.	Thickness Double In.	Hole In.
$\frac{1}{16}$	£2 1 0	£2 18 0	$2\frac{1}{4}$	$\frac{5}{16}$	$\frac{7}{16}$	1
$\frac{3}{32}$	2 1 0	2 18 0	$2\frac{1}{4}$	$\frac{5}{16}$	$\frac{7}{16}$	
$\frac{1}{8}$	2 1 0	2 18 0	$2\frac{1}{4}$	$\frac{5}{16}$	$\frac{7}{16}$	
$\frac{5}{32}$	2 6 0	3 5 0	$2\frac{1}{2}$	$\frac{7}{16}$	$\frac{9}{16}$	
$\frac{3}{16}$	2 6 0	3 5 0	$2\frac{1}{2}$	$\frac{7}{16}$	$\frac{9}{16}$	
$\frac{7}{32}$	2 10 0	3 10 0	$2\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	
$\frac{1}{4}$	2 10 0	3 10 0	$2\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	
$\frac{9}{32}$	2 17 6	4 2 6	$2\frac{3}{4}$	$\frac{5}{8}$	$\frac{15}{16}$	
$\frac{5}{16}$	2 17 6	4 2 6	$2\frac{3}{4}$	$\frac{5}{8}$	$\frac{15}{16}$	
$\frac{11}{32}$	3 8 0	4 16 6	3	$\frac{11}{16}$	$1\frac{1}{16}$	
$\frac{3}{8}$	3 8 0	4 16 6	3	$\frac{11}{16}$	$1\frac{1}{16}$	
$\frac{13}{32}$	3 18 6	5 11 0	$3\frac{1}{4}$	$\frac{3}{4}$	$1\frac{3}{16}$	
$\frac{7}{16}$	3 18 6	5 11 0	$3\frac{1}{4}$	$\frac{3}{4}$	$1\frac{3}{16}$	
$\frac{15}{32}$	4 12 0	6 14 0	$3\frac{1}{2}$	$\frac{7}{8}$	$1\frac{5}{16}$	
$\frac{1}{2}$	4 12 0	6 14 0	$3\frac{1}{2}$	$\frac{7}{8}$	$1\frac{5}{16}$	
$\frac{9}{16}$	5 3 0	7 10 0	$3\frac{1}{2}$	1	$1\frac{5}{16}$	
$\frac{5}{8}$	5 3 0	7 10 0	$3\frac{1}{2}$	1	$1\frac{5}{16}$	
$\frac{11}{16}$	6 3 0	9 0 0	$3\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{7}{16}$	
$\frac{3}{4}$	6 3 0	9 0 0	$3\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{7}{16}$	

COMET H.S.S. Angular Cutters (British Made)

Single and Double Angle for Spiral Mills. **Containing 18 per cent. Tungsten**

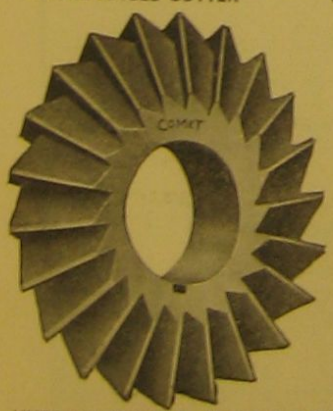
A right hand Single Angle Cutter, when mounted on an arbor with the flat side outwards, and a Right hand Double Angle Cutter when mounted with the more obtuse or flatter side outward, are ones which when viewed facing the spindle nose, rotate in a counter-clockwise direction. A left hand cutter, when mounted and viewed in the same manner revolves in a clock-wise direction.

SINGLE ANGLE CUTTER

Single Angle Cutter is for standard angles 45°, 50°, 60°, 70°, and 80° angle. Right or left-hand.

Equal (Double) Angle Cutter for Standard Angles, 45°, 60° or 90° included angle.

Unequal (Double) Angle Cutter for 48°, 53°, 58°, 63°, 68° or 73° one side and 12° on the other. Right or left hand.



UNEQUAL (DOUBLE) ANGLE CUTTER

EQUAL ANGLE CUTTER

Diam. Ins.	Thickness In.	Hole Ins.	Equal Angle Price Each	Single Angle Price Each	Unequal (Double) Angle Price Each
$2\frac{1}{2}$	$\frac{1}{2}$	1	£1 18 0	£1 18 0	—
$2\frac{1}{4}$	$\frac{5}{8}$	1	—	—	£2 2 0
3	$\frac{1}{2}$	$1\frac{1}{4}$	2 2 0	2 2 0	—
3	$\frac{5}{8}$	$1\frac{1}{4}$	2 6 0	2 6 0	—
3	$\frac{3}{4}$	$1\frac{1}{4}$	—	—	2 11 0

All Sizes shown above are to B.S.I. Specification.

HIGH SPEED STEEL MILLING CUTTERS

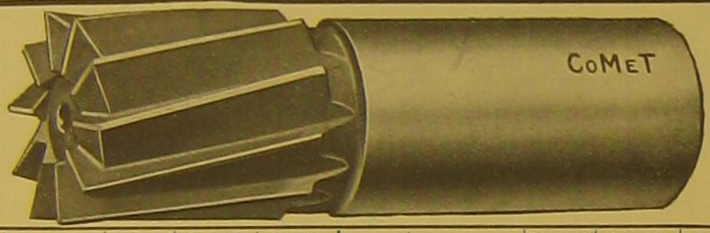
Super COMET H.S.S. End Mills (British Made)

Containing 18 per cent. Tungsten

With Taper Shanks

Straight or Spiral Flutes
Right or Left Hand

Diam. Ins.	Price Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.	Diam. Ins.	Price Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.	Diam. Ins.	Price Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.
END MILLS WITH BROWN & SHARPE TAPER SHANKS.														
1/4	£0 11 6	5	3/4	3 1/2	11/16	£1 1 0	7	1 3/8	5 1/2	1 3/8	£3 0 0	10	2 1/8	9 3/8
5/16	0 12 0	5	7/8	3 5/8	13/16	1 2 0	7	1 1/2	5 5/8	1 1/2	3 10 0	10	2 1/4	9 1/2
3/8	0 12 6	5	7/8	3 5/8	7/8	1 4 0	7	1 5/8	5 3/4	1 5/8	4 2 0	10	2 3/8	9 5/8
7/16	0 13 0	5	1	3 3/4	1	1 14 0	9	1 3/4	7	1 3/4	4 14 0	10	2 3/8	9 5/8
1/2	0 13 6	5	1	3 3/4	1 1/8	2 0 0	9	1 7/8	7 1/8	1 7/8	5 7 0	10	2 1/2	9 3/4
9/16	0 19 0	7	1 1/8	5 1/4	1 1/4	2 6 0	9	2	7 1/4	2	6 0 0	10	2 1/2	9 3/4
5/8	1 0 0	7	1 1/4	5 3/8										
END MILLS WITH MORSE TAPER SHANKS.														
1/4	£0 11 0	1	3/4	3 3/4	11/16	£0 19 0	2	1 3/8	5	1 3/8	£2 14 0	4	2 1/8	7 5/8
5/16	0 11 6	1	7/8	3 7/8	3/4	1 0 0	2	1 1/2	5 1/8	1 1/2	3 4 0	4	2 1/4	7 3/4
3/8	0 12 0	1	7/8	3 7/8	13/16	1 1 0	2	1 1/2	5 1/8	1 5/8	3 15 0	4	2 3/8	7 7/8
7/16	0 12 6	1	1	4	7/8	1 2 0	2	1 5/8	5 1/4	1 3/4	4 6 0	4	2 3/8	7 7/8
1/2	0 13 0	1	1	4	1	1 9 0	3	1 3/4	6 1/8	1 7/8	4 18 0	4	2 1/2	8
9/16	0 17 0	2	1 1/8	4 1/4	1 1/8	1 15 0	3	1 7/8	6 1/4	2	5 10 0	4	2 1/2	8
5/8	0 18 0	2	1 1/4	4 7/8	1 1/4	2 1 0	3	2	6 3/8					



With Straight Shanks

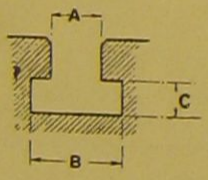
Straight or Spiral Flutes
Right or Left Hand

Diam. Ins.	Price Each	Diam. of Shank In.	Length of Cut Ins.	Length Overall Ins.	Diam. Ins.	Price Each	Diam. of Shank In.	Length of Cut Ins.	Length Overall Ins.	Diam. Ins.	Price Each	Diam. of Shank In.	Length of Cut Ins.	Length Overall Ins.
1/8	£0 8 6	1/4	3/8	1 7/8	9/16	£0 11 0	1/2	1 1/4	3	1	£1 2 0	3/4	1 3/4	3 3/4
5/16	0 8 6	1/4	1/2	2	5/8	0 12 6	5/8	1 1/4	3 1/4	1 1/16	1 6 0	1	—	4
1/4	0 7 6	1/4	3/4	2 1/4	11/16	0 14 6	5/8	1 1/2	3 1/2	1 1/8	1 8 0	1	—	4
5/16	0 9 0	3/8	7/8	2 3/8	3/4	0 15 6	5/8	1 1/2	3 1/2	1 3/16	1 12 0	1	—	4 1/4
3/8	0 9 6	3/8	7/8	2 3/8	13/16	0 17 0	3/4	1 5/8	3 5/8	1 1/4	1 14 0	1	—	4 1/4
7/16	0 10 0	1/2	1	2 3/4	7/8	0 19 0	3/4	1 5/8	3 5/8	1 3/8	2 1 0	1 1/4	—	4 1/2
1/2	0 10 0	1/2	1	2 3/4	15/16	1 1 0	3/4	1 3/4	3 3/4	1 1/2	2 8 0	1 1/4	—	5 1/4

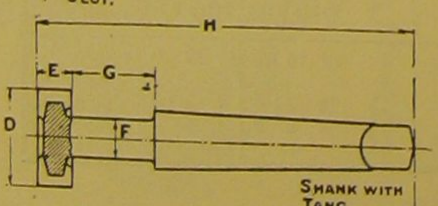
Super COMET H.S.S. Tee-Slot Cutters (British Made)

With B. & S. and MORSE TAPER SHANKS
Containing 18 per cent. Tungsten

These Cutters have the characteristics of a side and face cutter, integral with a taper shank for holding and driving, and are designed for cutting "T" slots in machine tables.



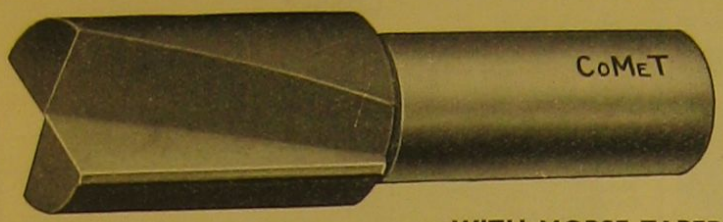
'T' SLOT.



Nominal Size of Bolt Ins.	Depth "C" Ins.	Diam. of Cutter "D" Ins.	Width of Bottom Part of Slot "B" Ins.	Width of Cutter "E" Ins.	B. & S. Taper No.	Price Each	Morse Taper No.	Price Each
1/4	3/16	19/32	9/16	7/32	5 (with Tang)	£1 9 0	1	£1 9 0
5/16	7/32	21/32	5/8	1/4		1 11 6		1 11 6
3/8	1/4	25/32	3/4	9/32		1 14 6		1 14 6
7/16	5/16	29/32	7/8	11/32		1 17 6		1 17 6
1/2	3/8	1 1/16	1	13/32	(Screwed 7 hole)	2 13 0	2	2 12 0
5/8	1/2	1 3/16	1 1/8	17/32		2 19 0		2 17 6
3/4	5/8	1 7/16	1 3/8	21/32	(Screwed 9 hole)	3 19 0	3	3 14 0
7/8	3/4	1 11/16	1 5/8	25/32		4 13 6		4 7 6
1	7/8	1 7/8	1 13/16	29/32		6 0 0		5 8 0
1 1/8	1	2 1/8	2	1 1/16	10 ,,	7 6 0	4	6 11 0
1 1/4	1 1/8	2 5/16	2 3/16	1 3/16		8 16 0		7 17 0
1 3/8	1 1/4	2 1/2	2 3/8	1 5/16	12 ,,	11 10 0	5	10 5 0
1 1/2	1 3/8	2 3/4	2 5/8	1 7/16		14 0 0		12 10 0

All Sizes shown above are to B.S.I. Specification.

HIGH SPEED STEEL MILLING CUTTERS



Super COMET H.S.S. Slot Drills or "Two Lipped" Slotting End Mills (British Made)

Containing 18 per cent Tungsten

WITH MORSE TAPER SHANK

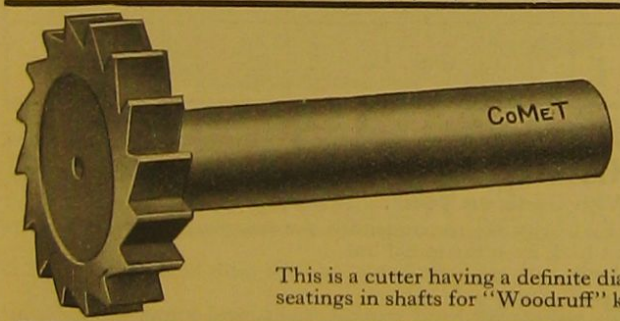
Diam. In.	Price, Each	No. of Taper	Length of Cut In.	Whole Length Ins.	Diam. In.	Price, Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.	Diam. In.	Price, Each	No. of Taper	Length of Cut In.	Whole Length Ins.
1/8	£0 11 6	1	3/8	3 3/8	7/16	£0 13 6	1	3/4	3 3/4	7/8	£1 3 0	2	1 1/2	5 1/8
5/32	0 11 6		3/8	3 3/8	1/2	0 14 0		7/8	3 7/8	1	1 10 0	3	1 3/4	6 1/8
3/16	0 11 6		3/8	3 3/8	9/16	0 18 0		1	4 5/8	1 1/4	2 4 0	4	2	6 3/8
1/4	0 12 0		1/2	3 1/2	5/8	0 19 0		1	4 5/8	1 1/2	3 7 0		2 1/4	7 1/4
5/16	0 12 6		1/2	3 1/2	11/16	1 0 0	2	1 1/8	4 3/4					
3/8	0 13 0		5/8	3 5/8	3/4	1 1 0		1 1/4	4 7/8					

WITH B. & S. TAPER SHANK

Diam. In.	Price, Each	No. of Taper	Length of Cut In.	Whole Length Ins.	Diam. In.	Price, Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.	Diam. In.	Price, Each	No. of Taper	Length of Cut In.	Whole Length Ins.
1/8	£0 12 0	5	3/8	3 1/8	7/16	£0 14 0	5	3/4	3 1/4	3/4	£1 3 0	7	1 1/4	5 3/8
5/32	0 12 0		3/8	3 1/8	1/2	0 14 6		7/8	3 5/8	7/8	1 6 6		1 1/2	5 5/8
3/16	0 12 0		3/8	3 1/8	9/16	1 0 0		1	5 1/8	1	1 16 0	9	1 3/4	7
1/4	0 12 6		1/2	3 1/4	5/8	1 1 0	7	1	5 1/8	1 1/4	2 8 0		2	7 1/4
5/16	0 13 0		1/2	3 1/4	11/16	1 2 0		1 1/8	5 1/4	1 1/2	3 13 0	10	2 1/4	9 1/2
3/8	0 13 6		5/8	3 3/8										

WITH PARALLEL SHANK

Diam. In.	Price Each	Dia. of Shank In.	Length of Cut Ins.	Whole Length Ins.	Diam. In.	Price Each	Dia. of Shank In	Length of Cut In.	Whole Length Ins.	Diam. In.	Price Each	Dia. of Shank In.	Length of Cut Ins.	Whole Length Ins.
1/8	£0 9 0	1/4	3/8	1 7/8	7/16	£0 10 6	1/2	3/4	2 1/2	7/8	£1 1 0	3/4	1 1/2	3 1/2
5/32	0 9 0	1/4	3/8	1 7/8	1/2	0 11 0	1/2	7/8	2 5/8	1	1 4 0	3/4	1 3/4	3 3/4
3/16	0 9 0	1/4	3/8	1 7/8	9/16	0 11 6	1/2	1	2 3/4	1 1/8	1 11 0	1	—	4
1/4	0 8 0	1/4	1/2	2	5/8	0 13 0	5/8	1	3	1 1/4	1 17 0	1	—	4 1/4
5/16	0 9 6	1/4	1/2	2	11/16	0 15 0	5/8	1 1/8	3 1/8	1 3/8	2 4 0	1 1/4	—	4 1/2
3/8	0 10 0	3/8	5/8	2 3/8	3/4	0 16 6	5/8	1 1/4	3 1/4	1 1/2	2 11 0	1 1/4	—	5 1/4



Super COMET H.S.S. Woodruff Keyseat Cutters (British Made)

Containing 18 per cent Tungsten

This is a cutter having a definite diameter and width with sides slightly concave, designed for cutting seatings in shafts for "Woodruff" keys, and integral with a parallel shank for holding and driving.

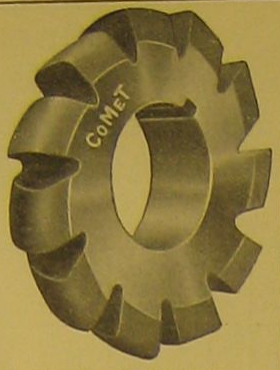
No.	Price, Each	Diam. In.	Thickness In.	Dia. of Neck at Small End In.	Diam. of Shank In.	Length Overall Ins.	No.	Price, Each	Diam. In.	Thickness In.	Dia. of Neck at Small End In.	Diam. of Shank In.	Length Overall Ins.
1	£0 12 0	1/2	1/16	3/32	1/2	2	15	£0 19 0	1	1/4	9/32	1/2	2 3/4
2	0 12 0	1/2	3/32	1/8		2	B	0 19 0	1	5/16	11/32		2 3/4
3	0 12 0	1/2	1/8	5/32		2	16	1 2 6	1 1/8	5/16	1/4		2 3/4
4	0 13 6	5/8	3/32	5/32		2							
							18	1 2 6	1 1/8	1/4	5/16		2 3/4
5	0 13 6	5/8	1/8	5/32		2	C	1 2 6	1 1/8	5/16	3/8		2 3/4
6	0 13 6	5/8	3/32	7/32		2	21	1 6 6	1 1/4	1/4	7/16		2 3/4
7	0 15 0	3/4	1/8	5/32	1/2	2 1/4	D	1 6 6	1 1/4	5/16	3/8	1/2	2 3/4
8	0 15 0	3/4	3/32	5/32		2 1/4							
				7/32			E	1 6 6	1 1/4	3/8	† 7/16		2 3/4
9	0 15 0	3/4	3/16	7/32		2 1/2	23	1 11 6	1 3/8	5/16	† 13/32		3
10	0 17 0	7/8	3/32	9/32		2 1/2	F	1 11 6	1 3/8	3/8	† 15/32		3
11	0 17 0	7/8	1/8	9/32		2 1/2							
			3/16	7/32			24	1 16 0	1 1/2	1/4	3/8		3
A	0 17 0	7/8	1/8	9/32		2 1/2	25	1 16 0	1 1/2	5/16	† 7/16		3
13	0 19 0	1	5/16	7/32		2 3/4	G	1 16 0	1 3/8	3/8	† 15/32		3

†Parallel.

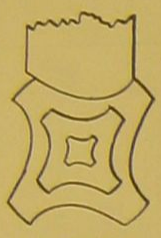
All sizes shown above are to B.S.I. Specification.

HIGH SPEED STEEL MILLING CUTTERS

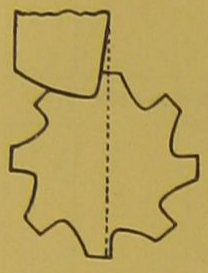
CUTTER FOR FLUTING TAPS ONLY



CUTTER FOR FLUTING REAMERS ONLY



FORM OF TAP



FORM OF REAMER

COMET H.S.S. Cutters for Fluting Taps and Reamers (British Made)

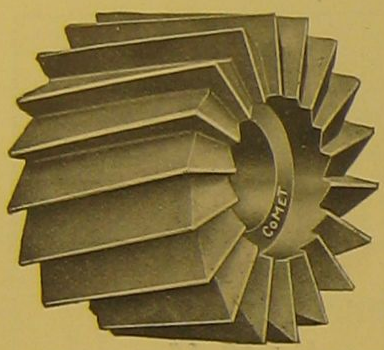
Containing 18 per cent Tungsten

Cutters for Fluting Taps Only

No. of Cutter	Price Each	Diameter of Tap Ins.	Diameter of Cutter Ins.	Hole in Cutter In.
1	£2 6 0	0 to 1/8	2	1
2	2 8 0	Over 1/8 ,, 1/4	2	1
3	2 12 0	,, 1/4 ,, 3/8	2 1/4	1
4	2 14 0	,, 3/8 ,, 5/8	2 1/2	1
5	2 17 0	,, 5/8 ,, 7/8	2 3/4	1
6	3 5 0	,, 7/8 ,, 1 1/4	2 1/2	1
7	3 10 0	,, 1 1/4 ,, 1 5/8	2 5/8	1
8	4 0 0	,, 1 5/8 ,, 2	2 7/8	1

Cutters for Fluting Reamers Only

No. of Cutter	Price Each	Size of Reamer Ins.	No. of Flutes in Reamer	Diam. of Cutter Ins.	Hole in Cutter In.
1	£2 6 0	1/8 to 3/16	6	2	1
2	2 8 0	Over 3/16 ,, 5/16	6	2	1
3	2 12 0	,, 5/16 ,, 7/16	6	2 1/4	1
4	2 14 0	,, 7/16 ,, 11/16	6 to 8	2 1/4	1
5	2 17 0	,, 11/16 ,, 1	8 ,, 10	2 3/8	1
6	3 0 0	,, 1 ,, 1 1/2	10 ,, 12	2 1/2	1
7	3 4 0	,, 1 1/2 ,, 2 1/8	12 ,, 14	2 3/8	1
8	3 13 0	,, 2 1/8 ,, 3	12 ,, 16	2 7/8	1
9	4 5 0	,, 3 ,, 4	14 ,, 18	3 1/8	1



COMET H.S.S. Shell End Mills (British Made)

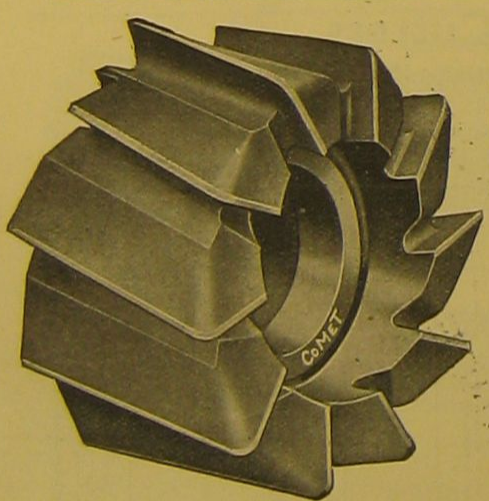
Regular and High Power Type

Containing 18 per cent Tungsten

With Straight or Spiral Flutes. End counterbored for screws and back slotted for driving purposes.

Diam. Ins.	Price Each	Length Ins.	Hole In.	Diam. Ins.	Price Each	Length Ins.	Hole In.	Diam. Ins.	Price Each	Length Ins.	Hole In.
1 3/4	£2 14 0	1 3/4	3/4	2 1/8	£3 6 0	1 3/4	3/4	2 1/2	£4 5 0	2 1/4	1
1 7/8	2 18 0			2 1/4	3 10 0			2 3/4	5 0 0		
2	3 2 0							3	5 16 0		

All sizes shown above are to B.S.I. Specification.



COMET H.S.S. Coarse Pitch Shell End Mills

With Undercut Teeth. 18 per cent Tungsten

Coarse Pitch Spiral End Mills are recommended for heavy cuts. The faces of the end teeth are also cut back from the radial line.

Faster feeds on deep cuts are permissible, and the teeth being heavier and fewer, less time is taken in regrinding.

These End Mills are made right-hand cutting, right-hand spiral. Suitable arbors, can be supplied.

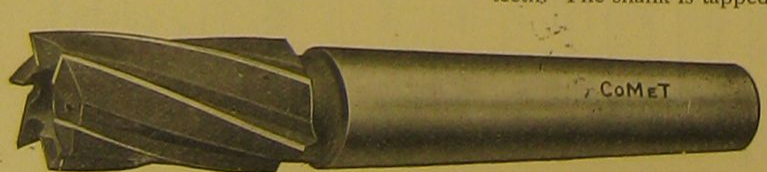
No.	D25	D30	D35	D40	D45	D50	D60
Diam. ... ins.	2 1/2	3	3 1/2	4	4 1/2	5	6
Length of Cut ,,	1 1/8	1 3/4	1 7/8	2 1/4	2 1/4	2 1/4	2 1/4
Hole ... ,,	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2
Price, without Arbor each	£2 10 0	£3 4 0	£4 0 6	£5 16 9	£6 18 9	£8 15 0	£11 13 3

COMET H.S.S Coarse Pitch Spiral End Mills

With Undercut Teeth. 18 per cent Tungsten

These End Mills are similar in design to the Shell End Mills listed above.

The body of the mill is counter-bored to provide for many regrindings of the end teeth. The shank is tapped for draw-in bolt.



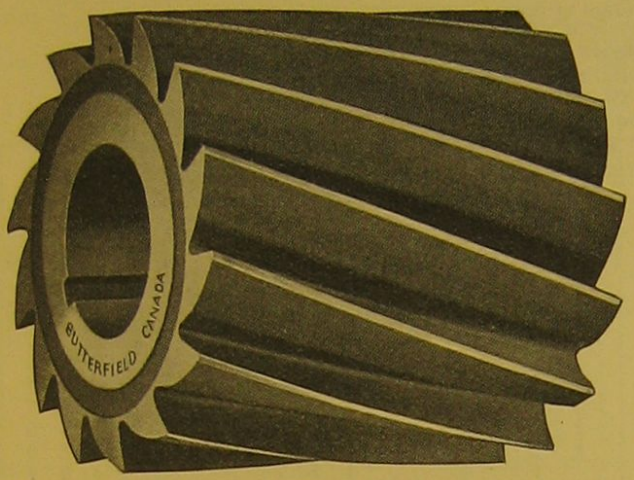
No.	D150	D151	D152	D154	D156	D157
Diameter ... ins.	1	1 1/4	1 1/2	1 3/4	2	2
B. & S. Taper No.	9	10	10	10	10	11
Length Overall ins.	6 3/8	8 11/16	9 3/16	9 3/16	9 11/16	10 1/4
Length of Cut ,,	2	2 1/8	3	3	3 1/8	3 1/8
No. of Flutes ...	4	5	6	7	8	8
Price Each ...	£2 1 3	£2 13 0	£3 7 0	£4 6 0	£5 3 6	£5 9 6

When specified, both these types of End Mills can be furnished, ground on face of teeth, at extra cost.

HIGH SPEED STEEL MILLING CUTTERS

Union-Butterfield H.S.S. Plain Milling Cutters (Made in Canada)

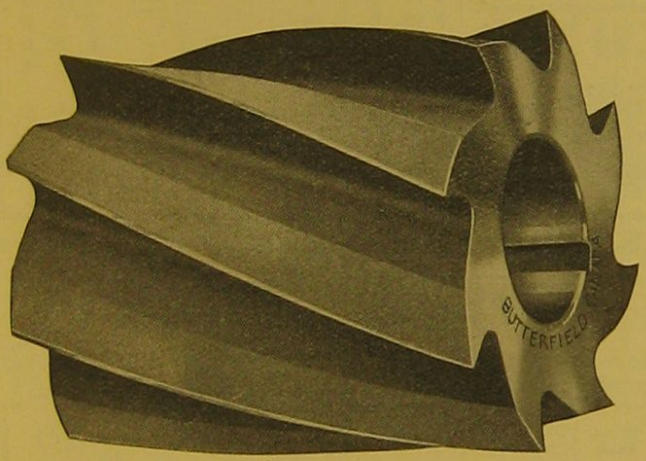
With Undercut Teeth



Plain Milling Cutters of less than $\frac{3}{4}$ inch face have straight teeth.

The undercut teeth of these Cutters are designed to afford maximum strength without increasing the width of land too quickly when sharpening, and to leave ample chip space in the fillet.

Diam. Ins.	Price Each	Face Ins.	Hole Ins.
$2\frac{1}{4}$	£0 18 9	$\frac{1}{2}$	$\frac{7}{8}$
	1 5 0	1	
$2\frac{1}{2}$	0 13 0	$\frac{3}{16}$	1
	0 17 3	$\frac{1}{4}$	
	0 18 0	$\frac{5}{16}$	
	0 19 3	$\frac{3}{8}$	
	1 0 6	$\frac{7}{16}$	
	1 1 3	$\frac{1}{2}$	
	1 3 6	$\frac{5}{8}$	
	1 5 0	$\frac{3}{4}$	
	1 8 9	1	
	1 16 0	$1\frac{1}{2}$	
	2 3 0	2	
	2 10 6	$2\frac{1}{2}$	
	2 17 3	3	
3	0 16 0	$\frac{3}{16}$	$1\frac{1}{4}$
	1 1 0	$\frac{1}{4}$	
	1 2 6	$\frac{5}{16}$	
	1 3 9	$\frac{3}{8}$	
	1 3 9	$\frac{3}{8}$	
	1 5 0	$\frac{1}{2}$	$1\frac{1}{2}$
	1 6 9	$\frac{5}{8}$	
3	£1 8 9	$\frac{5}{8}$	$1\frac{1}{4}$
	1 11 3	$\frac{3}{4}$	
	1 13 9	$\frac{7}{8}$	
	1 16 3	1	
	2 1 3	$1\frac{1}{4}$	
	2 6 0	$1\frac{1}{2}$	
	2 16 0	2	
	3 15 6	3	
4	1 9 9	$\frac{1}{4}$	1
	1 12 3	$\frac{5}{16}$	
	1 14 3	$\frac{3}{8}$	
	1 9 9	$\frac{1}{4}$	
	1 12 3	$\frac{5}{16}$	
	1 14 3	$\frac{3}{8}$	
	1 18 9	$\frac{1}{2}$	
	2 2 6	$\frac{5}{8}$	
4	2 6 9	$\frac{3}{4}$	$1\frac{1}{4}$
	2 14 9	1	
	3 11 3	$1\frac{1}{2}$	
	4 7 6	2	
	6 0 6	3	
	7 13 6	4	



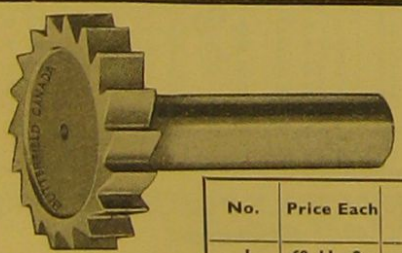
Union-Butterfield H.S.S. Coarse Pitch Milling Cutters

With Undercut Teeth

Coarse Tooth Cutters have a sharper spiral and fewer teeth than the regular type Plain Cutters, and require less power to operate.

The wide spacing of teeth allows ample chip room and makes possible exceptionally strong teeth.

Diam. ins.	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	3	3	3	4	4	4	4	$4\frac{1}{2}$	$4\frac{1}{2}$
Face ,,	2	4	2	$2\frac{1}{2}$	3	4	6	2	3	4	6	6	12
Hole ,,	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2
Price ...	£2 3 0	£3 12 3	£2 16 0	£3 6 0	£3 15 6	£4 15 0	£7 0 0	£4 7 6	£6 0 6	£7 13 6	£11 4 9	£13 16 3	£28 9 3



Union-Butterfield H.S.S. Woodruff Keyseat Cutters

(Made in Canada)

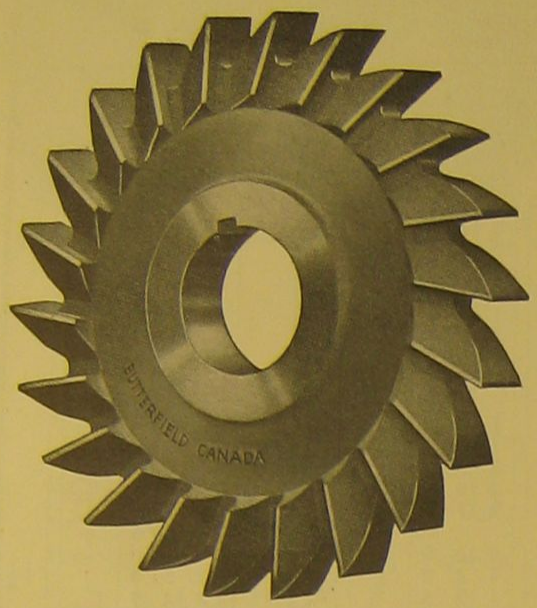
Shank diameter, $\frac{1}{2}$ inch. Prices are for right hand cutters. Left hand are quoted on request.

No.	Price Each	Diam. Ins.	Width of Face Ins.	Length Overall Ins.
1	£0 11 9	$\frac{1}{2}$	$\frac{1}{16}$	$2\frac{1}{16}$
2	0 11 9	$\frac{1}{2}$	$\frac{1}{32}$	$2\frac{1}{32}$
4	0 11 9	$\frac{1}{2}$	$\frac{3}{32}$	$2\frac{3}{32}$
3	0 11 9	$\frac{1}{2}$	$\frac{1}{8}$	$2\frac{1}{8}$
5	0 11 9	$\frac{5}{8}$	$\frac{1}{8}$	$2\frac{1}{8}$
7	0 13 0	$\frac{5}{8}$	$\frac{1}{8}$	$2\frac{1}{8}$
6	0 11 9	$\frac{5}{8}$	$\frac{5}{32}$	$2\frac{5}{32}$
61	0 11 9	$\frac{5}{8}$	$\frac{3}{16}$	$2\frac{3}{16}$
8	0 13 0	$\frac{3}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
91	0 13 0	$\frac{3}{4}$	$\frac{1}{8}$	$2\frac{1}{8}$
10	0 14 3	$\frac{3}{4}$	$\frac{5}{32}$	$2\frac{5}{32}$
9	0 13 0	$\frac{3}{4}$	$\frac{3}{16}$	$2\frac{3}{16}$
11	0 14 3	$\frac{7}{8}$	$\frac{1}{16}$	$2\frac{1}{16}$
12	0 14 3	$\frac{7}{8}$	$\frac{1}{32}$	$2\frac{1}{32}$
13	0 16 0	1	$\frac{1}{16}$	$2\frac{1}{16}$
14	0 16 0	1	$\frac{1}{32}$	$2\frac{1}{32}$
152	0 17 6	1	$\frac{3}{32}$	$2\frac{3}{32}$
16	0 17 6	$1\frac{1}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
A	£0 14 3	$\frac{7}{8}$	$\frac{1}{32}$	$2\frac{1}{32}$
15	0 16 0	1	$\frac{1}{32}$	$2\frac{1}{32}$
17	0 17 6	$1\frac{1}{4}$	$\frac{3}{32}$	$2\frac{3}{32}$
18	0 17 6	$1\frac{1}{4}$	$\frac{1}{32}$	$2\frac{1}{32}$
19	0 19 3	$1\frac{1}{4}$	$\frac{5}{32}$	$2\frac{5}{32}$
20	0 19 3	$1\frac{1}{4}$	$\frac{3}{32}$	$2\frac{3}{32}$
21	0 19 3	$1\frac{1}{4}$	$\frac{1}{32}$	$2\frac{1}{32}$
22	1 1 0	$1\frac{1}{4}$	$\frac{1}{32}$	$2\frac{1}{32}$
24	1 3 0	$1\frac{1}{4}$	$\frac{1}{32}$	$2\frac{1}{32}$
B	0 16 9	1	$\frac{1}{16}$	$2\frac{1}{16}$
C	0 18 3	$1\frac{1}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
D	1 0 6	$1\frac{1}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
23	1 2 6	$1\frac{1}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
25	1 4 9	$1\frac{1}{4}$	$\frac{1}{16}$	$2\frac{1}{16}$
E	1 0 6	$1\frac{1}{4}$	$\frac{3}{32}$	$2\frac{3}{32}$
F	1 2 6	$1\frac{1}{4}$	$\frac{3}{32}$	$2\frac{3}{32}$
G	1 4 9	$1\frac{1}{4}$	$\frac{3}{32}$	$2\frac{3}{32}$

PRICES CANCELLED

HIGH SPEED STEEL MILLING CUTTERS

Union—Butterfield H.S.S. Side Milling Cutters (Made in Canada)



With Undercut Teeth.

The design of these Cutters gives ample strength with plenty of chip room.

The form of tooth permits repeated grinding, and gives long life to the cutter.

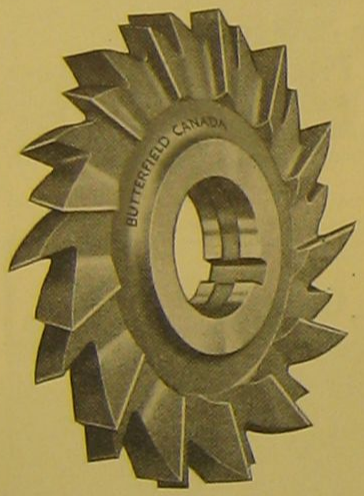
These Cutters are well adapted to a wide variety of production operations and can be used for straddle milling.

Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each	Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each
2	3/16	1/2 5/8	£0 17 6	4	3/4	1	£2 15 6
2	5/16		0 17 6	4	13/16	1¼	2 15 6
2	¼		0 18 6	4	7/8	1	2 19 9
2	¼		0 18 6	4	7/8	1¼	2 19 9
2	5/16		1 0 0				
2	5/16		1 0 0	5	1/2	1	3 3 0
				5	1/2	1¼	3 3 0
2½	¼	⅞	1 2 6	5	5/8	1	3 9 9
2½	5/16	⅞	1 3 9	5	5/8	1¼	3 9 9
2½	3/8	⅞	1 5 0	5	¾	1	3 16 0
2½	1/2	⅞	1 7 6	5	¾	1¼	3 16 0
				5	1	1¼	4 8 9
3	¼	1	1 7 3				
3	5/16	1	1 8 9	6	1/2	1	4 2 3
3	3/8	1	1 10 0	6	1/2	1¼	4 2 3
3	7/16	1	1 11 9	6	5/8	1¼	4 11 0
3	1/2	1	1 13 6	6	¾	1	5 0 0
				6	¾	1¼	5 0 0
4	¼	1	1 17 6	6	1	1¼	5 18 6
4	3/8	1	2 2 3				
4	1/2	1	2 7 3	7	¾	1¼	7 3 6
4	1/2	1¼	2 7 3	7	1	1¼	8 8 0
4	5/8	1	2 11 3				
4	5/8	1¼	2 11 3	8	¾	1¼	9 10 6
				8	1	1¼	11 2 6

PRICES CANCELLED.

Butterfield H.S.S. Staggered Tooth Side Milling Cutters

with Undercut Teeth



In these Cutters the teeth are alternately right and left hand spiral. They provide ample chip room, give free cutting action and are designed for key-way and deep slotting work.

These Cutters remove a large quantity of metal without vibration and can be run at increased speed and feed.

Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each	Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each	Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each
2½	¼	⅞	£1 8 6	4	¼	1¼	£2 7 3	6	⅜	1	£4 11 0
2½	5/16	⅞	1 9 9	4	5/16	1¼	2 10 0	6	1/2	1¼	5 2 6
2½	⅜	⅞	1 11 3	4	⅜	1¼	2 12 6	6	5/8	1¼	5 13 9
2½	1/2	⅞	1 14 9	4	7/16	1¼	2 16 0	6	¾	1¼	6 5 0
3	3/16	1	1 12 6	4	1/2	1¼	2 18 9	6	⅞	1¼	6 16 9
3	¼	1	1 13 9	4	5/8	1¼	3 4 3	6	1	1¼	7 18 0
3	5/16	1	1 16 0	4	¾	1¼	3 9 3	8	⅜	1½	8 16 9
3	⅜	1	1 17 6	4	⅞	1¼	3 14 9	8	1/2	1½	9 17 6
3	1/2	1¼	2 1 9	5	1/2	1¼	3 18 9	8	5/8	1½	10 18 0
3	5/8	1¼	2 5 0	5	5/8	1¼	4 7 3	8	¾	1½	11 18 0
3	¾	1¼	2 8 0	5	¾	1¼	4 15 0				

PRICES CANCELLED.

SHOWING THE TWO CUTTING SURFACES

SHOWING THE BLANK SIDE OF THE CUTTER

Butterfield H.S.S. Half Side Milling Cutters

With Undercut Teeth

Half Side Milling Cutters are designed for side cuts where one side only is required.

This type of Cutter is particularly recommended for straddle milling operations. The spiral, undercut teeth with ample chip room produce a free smooth cutting action and the deep cut side teeth give a much longer sharpening life.

Can be supplied right or left hand.

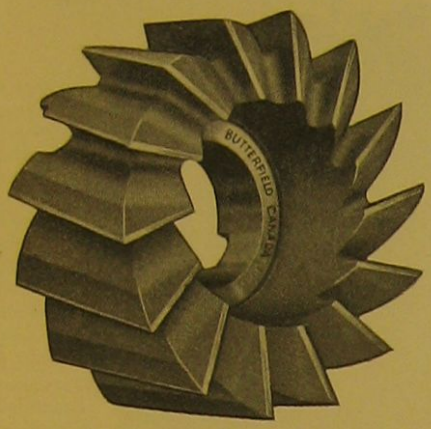
Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each	Diam. Ins.	Width of Face Ins.	Hole Ins.	Price Each
4	¾	1¼	£2 15 6	7	¾	1½	£7 3 6
5	¾	1¼	3 16 0	7	1	1½	8 0 8
6	¾	1¼	5 0 0	8	¾	1½	9 10 6
6	1	1½	5 18 6	8	1	1½	11 2 6

PRICES CANCELLED.

HIGH SPEED STEEL MILLING CUTTERS

Union-Butterfield H.S.S. Shell End Mills (Made in Canada)

With Undercut Teeth

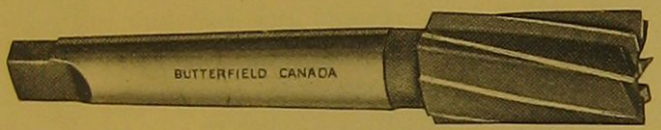


These Mills have undercut hooked type teeth, spiral flutes and can be supplied either right or left hand cut. The depth of counterbore and strong teeth makes recutting possible.

Diam. Ins.	Length of Cut Ins.	Size of Hole Ins.	Size of Driving Slot Width Ins.	Size of Driving Slot Depth Ins.	Price Each
1 1/4	1	1/2	1/4	5/32	£1 2 6
1 1/2	1 1/8	1/2	1/4	5/32	1 5 0
1 3/4	1 1/4	3/4	5/16	3/16	1 8 0
2	1 3/8	3/4	5/16	3/16	1 12 3
2 1/4	1 1/2	1	3/8	7/32	1 17 6
2 1/2	1 5/8	1	3/8	7/32	2 4 9
2 3/4	1 5/8	1	3/8	7/32	2 10 6
3	1 3/4	1 1/4	1/2	7/32	2 19 3
3 1/2	1 7/8	1 1/4	1/2	9/32	4 0 0
4	2 1/4	1 1/2	5/8	3/8	5 6 3
4 1/2	2 1/4	1 1/2	5/8	3/8	6 8 6
5	2 1/4	1 1/2	5/8	3/8	7 13 0
5 1/2	2 1/4	2	3/4	7/16	8 15 6
6	2 1/4	2	3/4	7/16	10 9 3

PRICES CANCELLED

Union-Butterfield H.S.S. End Mills (Made in Canada)



With Spiral Flutes, and Brown & Sharpe or Morse Taper Shanks

Diam. Ins.	Price Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.	Diam. Ins.	Price Each	No. of Taper	Length of Cut Ins.	Whole Length Ins.
End Mills with Brown & Sharpe Taper Shanks									
1/4	£0 13 9	5	5/8	2 13/16	3/4	£1 2 3	7	1 1/4	5 1/4
5/16	0 13 9	5	11/16	2 7/8	7/8	1 5 6	7	1 7/16	5 7/16
3/8	0 13 9	5	3/4	2 15/16	1	1 9 3	7	1 1/2	5 5/8
7/16	0 14 9	5	7/8	3 1/16	1 1/8	1 18 9	7	1 3/4	7
1/2	0 14 9	5	15/16	3 1/8	1 1/4	2 3 9	7	2	7 1/4
1/2	1 1 3	7	15/16	4 15/16	1 1/2	2 15 6	9	2 1/4	7 1/2
5/16	1 1 3	7	1	5	1 3/4	3 9 3	9	2 1/2	7 3/4
5/8	1 2 3	7	1 1/8	5 1/8	2	4 7 6	9	2 3/4	8
End Mills with Morse Taper Shanks									
1/4	£0 13 6	1	5/8	3 1/2	3/4	£1 9 3	3	1 1/4	5 9/16
5/16	0 13 9	1	11/16	3 9/16	7/8	1 9 3	2	1 7/16	4 15/16
3/8	0 13 9	1	3/4	3 5/8	7/8	1 9 3	3	1 7/16	5 3/4
7/16	0 13 9	1	7/8	3 3/4	1	1 7 6	2	1 5/8	5 1/8
1/2	0 14 3	1	15/16	3 13/16	1	1 10 6	3	1 5/8	5 15/16
1/2	1 0 0	2	15/16	4 7/16	1 1/8	1 15 0	3	1 3/4	6 1/16
5/8	1 0 6	2	1 1/8	4 5/8	1 1/4	2 0 0	3	2	6 5/16
3/4	1 0 6	2	1 1/4	4 3/4					

PRICES CANCELLED.

Union-Butterfield H.S.S. End Mills (Made in Canada)

With Straight Shanks

These end mills are Standard with either right or left hand cut. The diameter of shank is the same as the diameter of cut. Straight shank end mills under 1/4 inch diameter have straight flutes. Sizes 1/4 inch diameter and over, right hand mills have right hand spiral flutes and left hand mills have left hand spiral flutes.

Diam. Ins.	Price Each	Length of Cut Ins.	Length Overall Ins.	Diam. Ins.	Price Each	Length of Cut Ins.	Length Overall Ins.
1/8	£0 6 0	5/16	1 1/4	3/8	£0 8 9	3/4	1 13/16
5/32	0 6 3	5/16	1 1/4	7/16	0 9 9	7/8	2 3/16
5/32	0 7 3	7/16	1 5/8	7/16	0 10 6	1	2 1/4
7/32	0 7 6	7/16	1 5/8	9/16	0 11 3	1	2 5/16
1/4	0 7 6	5/8	1 11/16	5/8	0 12 6	1 1/8	2 1/2
1/4	0 8 0	11/16	1 3/4	3/4	0 14 9	1 1/4	2 5/8

PRICES CANCELLED

Butterfield High Speed Steel Form Ground Hobs

Hobs of all shapes and sizes and for all hobbing purposes can be supplied in the Butterfield range, to meet customers' requirements. **Full details and prices will be sent on receipt of specific information.**

Hobs and their uses——Hobbing

A hob is a cutter having a lead or thread, the form of thread developed to produce teeth of the desired shape equally spaced on a cylindrical base. It is commonly used for cutting teeth in spur and spiral gears, herring-bone gears, worm gears, worms, spline shafts, ratchets, square shafts and sprockets for silent chain, roller chain and block chain. **The hobbing method generates correctly formed teeth having the correct circular pitch.** Increase in production and uniformity of work produced has caused the hobbing method to be adopted in preference to other methods which are in general use.

The action of the hob is continuous, advancing uniformly as the blank rotates without the intermittent or reciprocating motion commonly found in gear cutting machines. The rise of temperature due to cutting is uniform around the periphery of the blank as the hob and blank both rotate. The cutting is distributed over a considerable length of the hob, bringing a number of cutting edges into action, which not only reduces heat but increases the life of the hob.

One hob of a given pitch will cut all numbers of teeth generating the correct form of tooth for each number of teeth being cut.

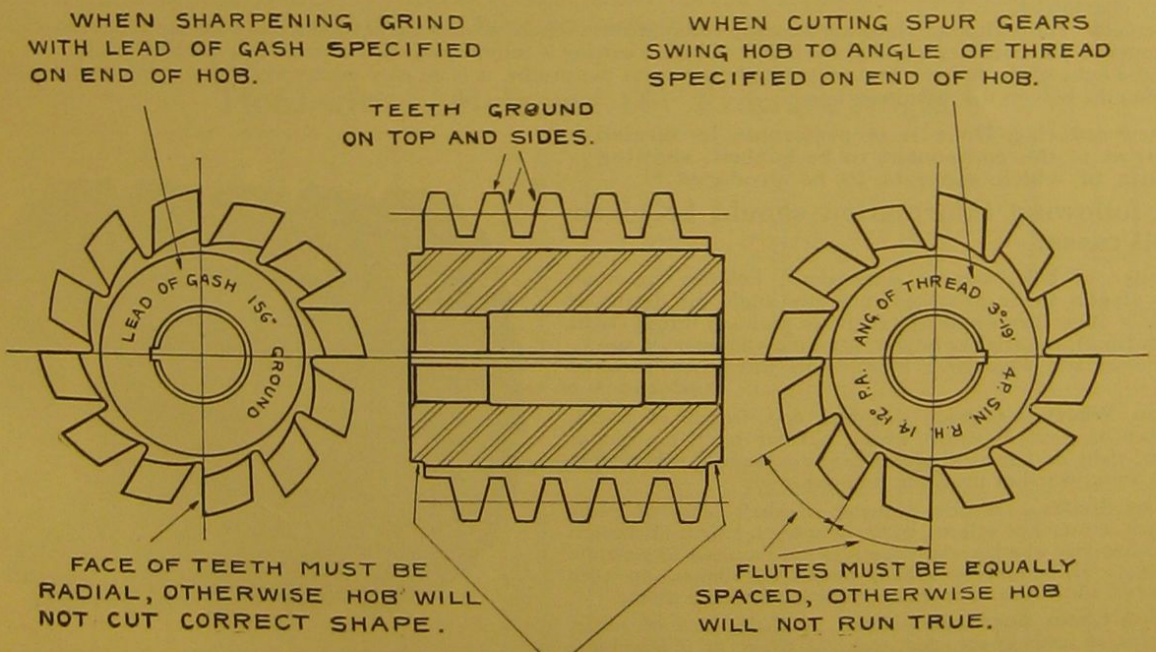
Hobs are furnished with threads ground or unground. We recommend the ground hob, particularly for work requiring accuracy. In grinding the thread or form after a hob is hardened, all inaccuracies due to hardening and tempering operations are removed, the lead and form of thread being held to the required limits. Grinding the form has a further advantage in that rough surfaces are made smooth, all tool marks and roughness due to the hardening operation being removed, thus producing a smooth and keen cutting edge which will not only produce smoother and better work, but gives longer cutting life between sharpenings.

Every ground hob is carefully tested for accuracy of lead and form in specially designed and accurately built testing machines. The gashes or teeth are also tested for accuracy of lead and for being radial or undercut, as the case may be.

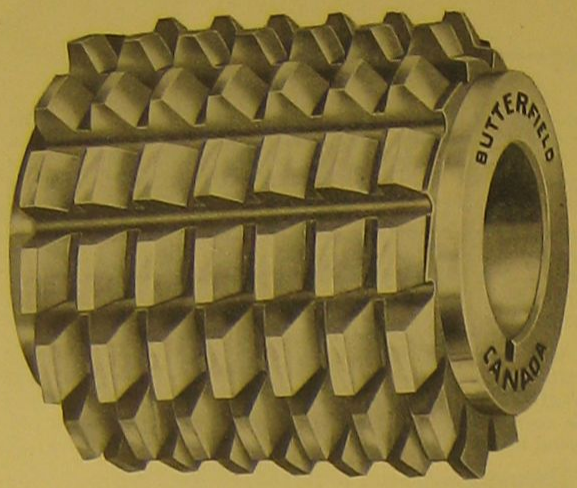
It is very essential that a ground hob be sharpened with the same degree of accuracy and care as it was originally made. Gashes must be evenly spaced, ground the correct lead and faces radial. Otherwise the work produced by the hob will have a rough and uneven surface.

It is vitally essential to be certain that a ground hob is running true when working in the hobbing machine. All hobs are made with a projecting hub on each end for convenience in indicating the hob after it is mounted on the hobbing machine arbor. To obtain the best results these hubs should run true within ·001 inch or less. The successful use of hobs depends on the condition and accuracy of the hobbing machine as well as the hob. Slides and spindles must be properly adjusted. The work arbor must run true and work should be rigidly supported. The speed and feed at which hobs should run depend largely on the kind and nature of material to be cut, also the finish desired. Approximate speeds and feeds, however, can be given.

Use Butterfield H.S.S. Form Ground Hobs for best results


WHEN SHARPENING GRIND WITH LEAD OF GASH SPECIFIED ON END OF HOB.
WHEN CUTTING SPUR GEARS SWING HOB TO ANGLE OF THREAD SPECIFIED ON END OF HOB.
TEETH GROUND ON TOP AND SIDES.
LEAD OF GASH 1.56" GROUND
ANG OF THREAD 3°19' 4 P SIN R.H. 14 1/2° P.A.
FACE OF TEETH MUST BE RADIAL, OTHERWISE HOB WILL NOT CUT CORRECT SHAPE.
FLUTES MUST BE EQUALLY SPACED, OTHERWISE HOB WILL NOT RUN TRUE.
WHEN SETTING UP IT SHOULD BE DETERMINED IF HOB RUNS TRUE BY PLACING INDICATOR ON HUBS WHICH ARE GROUND TRUE WITH TEETH

HIGH SPEED STEEL FORM GROUND HOBS



BUTTERFIELD
High-Speed Steel
Form Ground Hobs (Made in Canada)

Accuracy.
Better
Finished Work.
Longer Cutting
Life between
Sharpenings.

We can supply Ground Hobs for Spur and Spiral Gears, Worm Wheels, Spline Shafts, and Roller Chain Sprockets.

The three essentials in the production of highly efficient gears are:—

1. Hobbing machine with a high degree of accuracy.
2. A hob manufactured under ideal conditions and produced to the finest possible limits.
3. Efficient manipulation of both machine and tool.

No matter how good the machine or how careful the operator, the results can still be far from satisfactory if the hob is lacking in accuracy of contour, concentricity, lead, or flute spacing.
In view of this it is essential that only hobs of reputable manufacture be put into operation when considering efficient production on hobbing machines.
"Butterfield" Form Ground Hobs fulfil all requirements for accurate and economic production of components, since they are only passed through for service after having undergone closest inspection on machines specially designed for hob checking. They are made from a specially selected Super High-speed Steel, and the utmost care and attention is bestowed upon the heat treating of the tools.
Concentricity of the thread form, lead, and spacing of flutes are all held to within very fine limits, and high-quality production thereby guaranteed.
"Butterfield" Form Ground Hobs are strongly recommended where accuracy and production costs are under review.
Care must be exercised in mounting the hob, and before cutting is commenced the hob must run concentrically.
Since the hubs of the hob are ground perfectly true with the profile, it is an easy matter to check up with an indicator after clamping the hob on the machine arbor.

When ordering Hobs it is preferable to furnish a print of the component to be hobbed, showing limits to which same is to be produced.

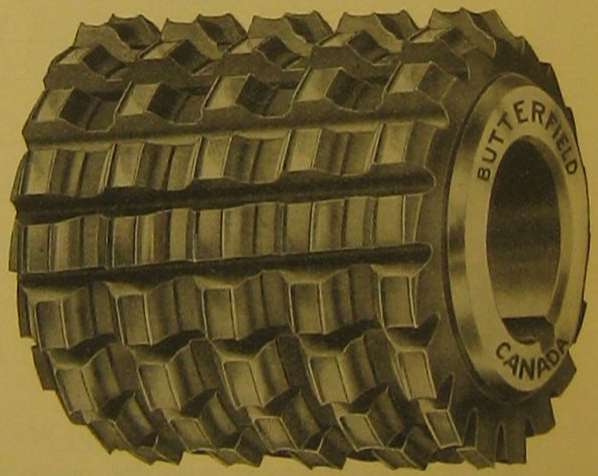
The following information should be given in all cases:—

Diameter of hole, keyway dimensions, hobbing machine, pitch of gear to be produced, pressure angle (or details of profile if other than standard), single or multiple thread (right or left hand), material to be cut, grinding allowance if any.
Additional and alternative information when hob required for:—

Worm Wheels.—Outside diameter and length of worm, number of teeth in worm wheel, circular pitch or lead of worm, right or left-hand worm, whether hob is required to drive work, whether throating hob required.

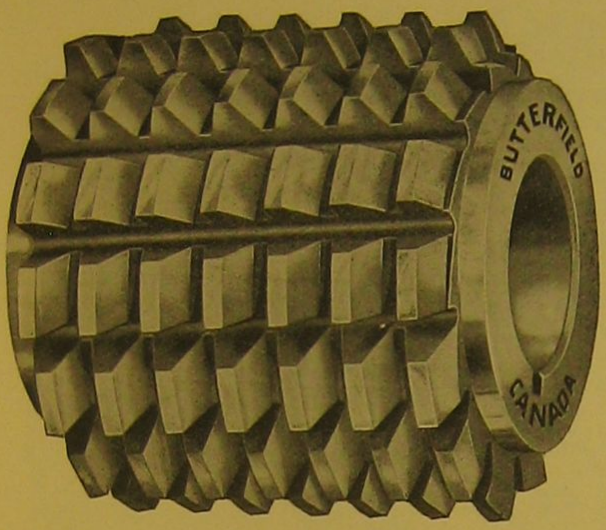
Spline Shafts.—Outside diameter of shaft, core diameter of shaft, number of splines, width of splines, length of straight side of spline, whether clearance lugs are required to generate clearance at bottom of spline, tolerances allowed on core diameter and width of splines, grinding allowance if any.

Roller Chain Sprockets.—Pitch of chain, size of roller, number of teeth in sprocket, make of chain, or if possible a sample of sprocket should be sent.



Overleaf we give particulars of the full range of Standard Diametral Pitches in which Butterfield High-Speed Steel Form Ground Hobs can be supplied.

HIGH SPEED STEEL FORM GROUND HOBS



BUTTERFIELD

High-Speed Steel

Form Ground Spur Gear Hobs (Made in Canada)

Accuracy.

Better Finished Work.

Longer Cutting Life between Sharpenings.

Hobs with $2\frac{1}{2}$, 2, $1\frac{1}{2}$ and $1\frac{1}{4}$″ Holes and $14\frac{1}{2}$° Pressure Angle

Diametral Pitch	Outside Diam. Ins.	Length Ins.	Diam. of Hole Ins.	Size of Keyway Ins.	Diametral Pitch	Outside Diam. Ins.	Length Ins.	Diam. of Hole Ins.	Size of Keyway Ins.
1	$10\frac{3}{4}$	15	$2\frac{1}{2}$	$\frac{5}{8}\times\frac{5}{16}$	8	3	3	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$1\frac{1}{4}$	$8\frac{3}{4}$	12	2	$\frac{1}{2}\times\frac{1}{4}$	9	3	3	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$1\frac{1}{2}$	8	10	2	$\frac{1}{2}\times\frac{1}{4}$	10	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$1\frac{3}{4}$	$7\frac{1}{4}$	9	2	$\frac{1}{2}\times\frac{1}{4}$	12	$2\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
2	$5\frac{3}{4}$	8	$1\frac{1}{2}$	$\frac{3}{8}\times\frac{3}{16}$	14	$2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$2\frac{1}{4}$	$5\frac{1}{4}$	$7\frac{1}{2}$	$1\frac{1}{2}$	$\frac{3}{8}\times\frac{3}{16}$	16	$2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$2\frac{1}{2}$	5	7	$1\frac{1}{2}$	$\frac{3}{8}\times\frac{3}{16}$	18	$2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$2\frac{3}{4}$	$4\frac{3}{4}$	6	$1\frac{1}{2}$	$\frac{3}{8}\times\frac{3}{16}$	20	$2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
3	$4\frac{1}{2}$	5	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$	22	$2\frac{1}{2}$	2	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
$3\frac{1}{2}$	$4\frac{1}{4}$	$4\frac{3}{4}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$	24	$2\frac{1}{2}$	2	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
4	4	4	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$	26	$2\frac{1}{2}$	2	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
5	$3\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$	28	$2\frac{1}{2}$	2	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
6	$3\frac{1}{4}$	$3\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$	30	$2\frac{1}{2}$	2	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$
7	3	3	$1\frac{1}{4}$	$\frac{1}{4}\times\frac{1}{8}$					

Prices on Application

Hobs with $\frac{3}{4}$″ Hole and $14\frac{1}{2}$° Pressure Angle

12	2	2	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	32	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
14	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	34	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
16	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	36	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
18	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	38	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
20	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	40	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
22	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	42	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
24	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	44	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
26	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	46	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
28	$1\frac{7}{8}$	$1\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	48	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$
30	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$	50	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{8}\times\frac{1}{16}$

Prices on Application

Hobs with $\frac{1}{2}$″ Hole and $14\frac{1}{2}$° Pressure Angle

24	$1\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	38	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
26	$1\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	40	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
28	$1\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	42	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
30	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	44	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
32	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	46	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
34	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	48	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$
36	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$	50	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{8}\times\frac{1}{16}$

Prices on Application

We are also prepared to furnish Form Ground Spur Gear Hobs in sizes not included in the above List

HIGH SPEED STEEL FORM GROUND HOBS

When Ordering Butterfield Hobs.—

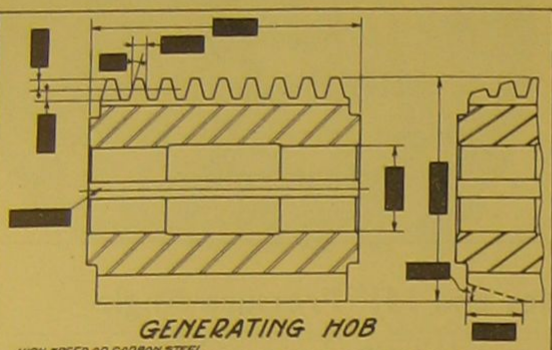
For convenience of our Customers the following Charts are available:—

Gear Generating Hobs—Arbor Type. **Worm Gear Hobs—Arbor Type.**

Gear Generating Hobs—Shank Type. **Worm Gear Hobs—Shank Type.**

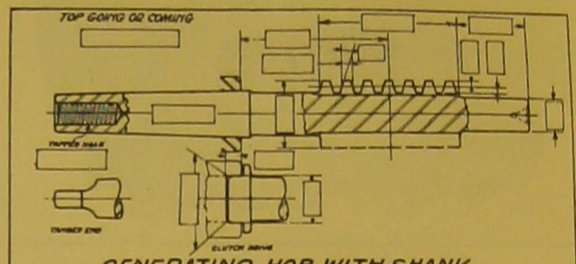
Spline Shaft Hob.

The charts, as illustrated below, incorporate the information and details necessary to produce the hob to requirements, and they simply need filling in.



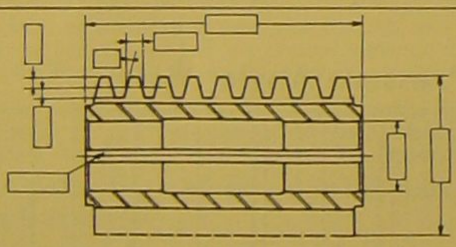
GENERATING HOB

HIGH SPEED OR CARBON STEEL
PITCH (NORMAL OR LINEAR FIGURES)
NUMBER OF THREADS
RIGHT OR LEFT HAND THREADS
PRESSURE ANGLE
ROUGHING OR FINISHING
GROUND OR UNGROUND
TOPPING (YES OR NO)
DIAMETER
LENGTH
DIAMETER OF HOLE
KEYWAY
THICKNESS OF TOOTH "t"
DISTANCE ABOVE PITCH LINE (5" DIA HOB)
DISTANCE BELOW PITCH LINE (3+f" DIA HOB)
STRAIGHT OR SPIRAL FLUTES
RADIAL OR UNDERCUT
MATERIAL TO BE CUT
KIND OF GEARS (SPUR OR SPIRAL)
LENGTH & ANGLE OF TAPER ROTATION
INFORMATION:- SEND BLUEPRINT OF WORK TO BE CUT WHEN POSSIBLE



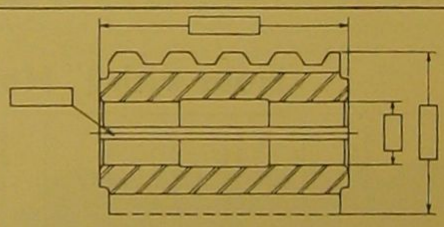
GENERATING HOB WITH SHANK

HIGH SPEED OR CARBON STEEL
PITCH (NORMAL OR LINEAR FIGURES)
NUMBER OF THREADS
RIGHT OR LEFT HAND THREADS
ROTATION (TOP GOING OR COMING)
PRESSURE ANGLE
ROUGHING OR FINISHING
GROUND OR UNGROUND
TOPPING (YES OR NO)
DIAMETER OF HOB PORTION
LENGTH OF HOB PORTION
THICKNESS OF TOOTH "t"
DISTANCE ABOVE PITCH LINE (5" DIA HOB)
DISTANCE BELOW PITCH LINE (3+f" DIA HOB)
STRAIGHT OR SPIRAL FLUTES
IF SPIRAL RIGHT OR LEFT HAND
RADIAL OR UNDERCUT
LENGTH OF PILOT
DIAMETER OF PILOT
IS PILOT USED IN BEARING OR CENTERS
NUMBER OF SHANK
METHOD OF DRIVE (CLUTCH OR TAPER)
HAS SHANK TAPPED HOLE OR TANG
IF TAPPED HOLE GIVE SIZE & THREAD
RIGHT OR LEFT HAND THREAD
IF CLUTCH DRIVE GIVE:-
WIDTH OF SLOT IN SPINDLE
DEPTH OF SLOT IN SPINDLE
DIAM HOLE AT LARGE END OF SPINDLE
GIVE DISTANCE FROM END OF SPINDLE TO CENTER OF HOB PORTION
MAKE OF MACHINE USED ON
MATERIAL TO BE CUT
KIND OF GEARS (SPUR OR SPIRAL)
INFORMATION:- SEND BLUEPRINT OF WORK TO BE CUT WHEN POSSIBLE.
AS.

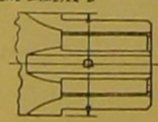


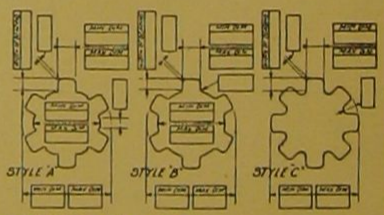
WORM HOB

HIGH SPEED OR CARBON STEEL
PITCH (LINEAR OR NORMAL FIGURES)
NUMBER OF THREADS
RIGHT OR LEFT HAND THREADS
PRESSURE ANGLE (LINEAR OR NORMAL)
ROUGHING OR FINISHING
GROUND OR UNGROUND
OUTSIDE DIAMETER OF WORM
LENGTH OF WORM OR NUMBER OF TEETH IN GEAR (THIS TO DETERMINE LENGTH OF HOB)
DIAMETER OF HOLE
KEYWAY
THICKNESS OF TOOTH
DISTANCE ABOVE PITCH LINE
DISTANCE BELOW PITCH LINE
DOES HOB DRIVE WORK?
IF HOB DRIVES WORK (STRAIGHT OR SPIRAL FLUTES)
RADIAL OR UNDERCUT
MATERIAL TO BE CUT
MAKE OF MACHINE USED ON
INFORMATION:- SEND BLUE PRINT OF WORK TO BE CUT WHEN POSSIBLE
AS.



DOES SHAFT HAVE SHOULDER WITH CUT RUNNING INTO IT AS SHOWN BELOW? IF SO, GIVE DIAMETER "D"



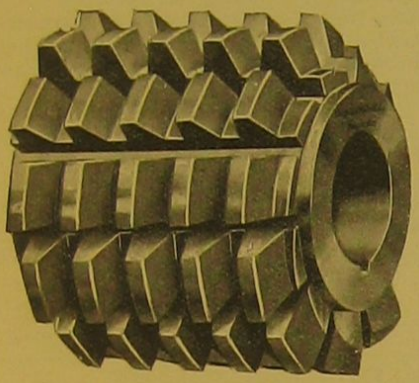


SPLINE SHAFT HOB

HIGH SPEED OR CARBON STEEL
SINGLE OR DOUBLE THREADS
RIGHT OR LEFT HAND THREADS
ROUGHING OR FINISHING
GROUND OR UNGROUND
TOPPING (YES OR NO)
DIAMETER
LENGTH
DIAMETER OF HOLE
STRAIGHT OR SPIRAL FLUTES
RADIAL OR UNDERCUT
MATERIAL TO BE CUT
STYLE OF SHAFT "A" "B" OR "C"
NUMBER OF SPLINES
NOTE: ARE DIMENSIONS OF SHAFT GIVEN AS FINISH DIM OR HOBBING DIM.?
INFORMATION:- SEND BLUE PRINT OF WORK TO BE CUT WHEN POSSIBLE.

COMET High Speed Steel Gear Hobs (British Made)

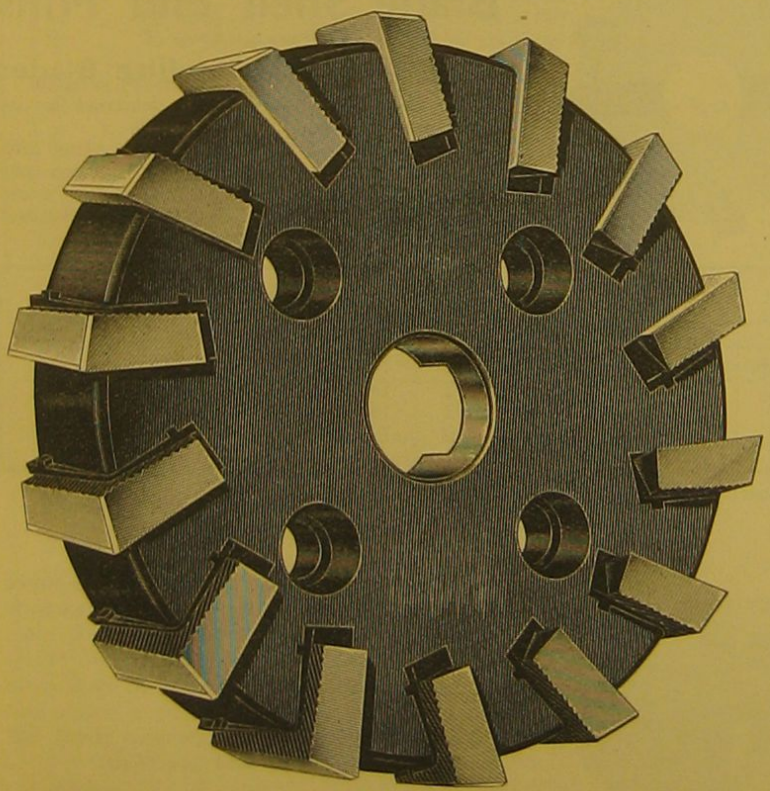
The following lengths of Hobs are sufficient for the cutting of Spur Gears up to 125 teeth and Helical Gears up to 90 teeth with 14½ degree pressure angle. Other sizes will be quoted for upon receipt of necessary data.
In ordering please state:—Pitch, Pressure Angle, Number of Starts, Size of Hob, if Right or Left Hand, Type of Drive (sizes of slot or keyway), material to be cut.



Note.—The pitches of cutters given in columns D.P., C.P., and Module are an indication of common external diameter only, and are not shown as exact pitch equivalents.

Pitch			Hobs to B.S.I. Spec. (New Style)				Hobs to B.E.S.A. Spec. (Old Style)			
D.P.	C.P. Ins.	Module Ins.	Diam. of Hob Ins.	Length Ins.	Hole Diam. Ins.	Price Each	Diam. of Hob Ins.	Length Ins.	Hole Diam. Ins.	Price Each
34	—	¾	1⅛	1⅛	½	50/-	2	1	1	57/6
32	—	—	1⅛	1¼	½	50/-				57/6
28	—	—	1¼	1¼	½	52/6				57/6
24	⅛	1	1¼	1¼	½	52/6				57/6
24	⅛	1	1⅞	1⅞	¾	62/6	2	1	1	57/6
20	—	1¼	1⅞	1⅞	¾	62/6	2¼	1¼	1	60/-
16	3/16	1½	1⅞	1⅞	¾	62/6	2¼	1½	1	60/-
12	¼	2	2	2	¾	65/-	2⅜	1¼	1	62/6
24	⅛	1	2⅛	2	1¼	65/-	2	1	1	57/6
20	—	1¼	2⅛	2¼	1¼	80/-	2¼	1¼	1	60/-
16	3/16	1½	2⅛	2¼	1¼	82/6	2¼	1½	1	60/-
14	—	1¾	2⅛	2⅛	1¼	85/-	2¼	1½	1	60/-
12	¼	2	2¼	2¼	1¼	90/-	2⅜	1¾	1	62/6
11	—	2¼	2¼	2¼	1¼	92/6	2⅜	1¾	1	62/6
10	5/16	2½	2¼	2¼	1¼	95/-	2⅜	2	1	65/-
9	—	2¾	3	3	1¼	102/6	2⅜	2	1	65/-
8	⅜	3	3	3	1¼	105/-	3	2¼	1¼	85/-
7	7/16	3½	3	3	1¼	107/6	3¼	2½	1¼	92/6
6	½	4	3¼	3¼	1¼	115/-	3¼	2¾	1¼	100/-
5½	9/16	4½	3⅜	3⅜	1¼	125/-	3⅜	3	1¼	112/6
5	⅝	5	3½	3½	1¼	130/-	3½	3¼	1¼	125/-
4½	11/16	5½	4¼	4	1¼	160/-	3¾	3½	1¼	145/-
4	¾	6	4¼	4	1¼	165/-	4	4	1¼	165/-
3¾	13/16	—	4¼	4¾	1¼	190/-	4⅛	4¼	1¼	175/-
3½	⅞	7	4¼	4¾	1¼	197/6	4¼	4½	1¼	182/6
3¼	15/16	—	4½	5	1¼	210/-	4⅜	5	1¼	205/-
3	1	8	4½	5	1½	220/-	4½	5¼	1¼	225/-
2½	1¼	9	4¾	6	1½	250/-	5¼	5¾	1½	290/-
2½	1¼	10	5	7	1½	300/-	5⅜	6½	1½	355/-
2¼	1⅜	11	5¼	7½	1½	375/-	5⅜	7	1½	405/-
2	1½	12	5½	8	1½	455/-	5⅜	8	1½	455/-
1¾	1¾	14	7¼	9	2	600/-	6⅜	8¼	2	530/-
1½	2	16	8	10	2	775/-	7¼	9¼	2	620/-

COMET Inserted Tooth Milling Cutters (British Made)



These Inserted Tooth Milling Cutters are of a very high degree of manufacture and efficiency, and are designed to fit the Standardised Spindle Nose of Cincinnati Milling Machines. **The blades themselves are of unusually hard** and tough steel and are adjustable in both directions either separately or in combination. They can be staggered for heavy duty.

A special feature of the cutters is the method by which they are secured in the body. They cannot move once they are in position because the serrations on their backs engage with similar cuts in the shim which itself has a projection in the form of an arc on the reverse side, and which fits directly into the main body; this arc in combination with the base of the tooth pocket disposed in tangent form, **renders both blade and shim immovable under load.**

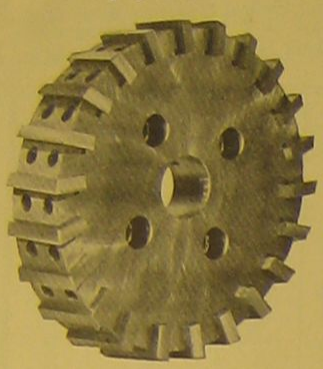
This provides the most positive form obtainable of locking the cutters.

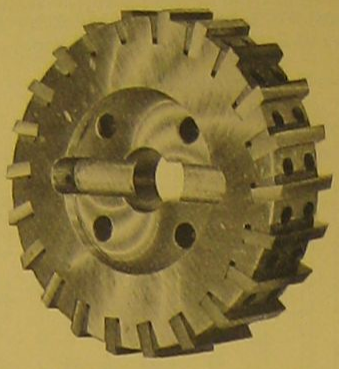
Blades are easily released for adjustment or replacement by inserting a suitable punch in holes provided for the purpose, and giving the punch a sharp blow.

The bodies are made from 100 ton tensile nickel chrome air-hardened steel; they are heat-treated after machining and are practically unbreakable.

Sizes and Prices																								
Diam. ins.	...	4			5			6			7			8			9			10			11			12		
Price, each	...	£4	13	6	£5	14	6	£6	2	6	£9	15	0	£11	10	0	£12	13	0	£13	16	0	£14	19	0	£16	2	0

"Production" Inserted Blade Milling Cutters (Made in U.S.A.)





Type A200 with Stellite Blades

These are general-purpose tools designed primarily for use on milling machines fitted with standardised flanged spindle. They are capable of satisfactory operation over a wide range of speeds and feeds.

The cutter body is a specially heat-treated alloy steel forging, slots are milled after heat treatment to ensure perfect accuracy of fit and blade rigidity in operation.

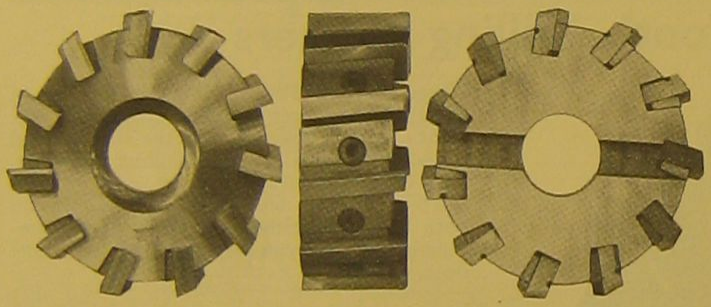
Blades, $\frac{3}{8} \times 1 \times 2\frac{1}{4}$ ins., are interchangeable on all diameter cutters and are designed with most efficient cutting angle.

Cutters of same general design and type number can be supplied for use with arbors, and are available in sizes from 6 inches diameter and up.

Diam. over Blades Ins.	Thickness Cutting Edge to Driving Face, Ins.	Diam. of Hole Ins.	No. of Blades A200 Stellite	Diam. over Blades Ins.	Thickness Cutting Edge to Driving Face, Ins.	Diam. of Hole Ins.	No. of Blades A200 Stellite	Diam. over Blades Ins.	Thickness Cutting Edge to Driving Face, Ins.	Diam. of Hole Ins.	No. of Blades A200 Stellite
$7\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{3}{4}$	17	$10\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{3}{4}$	24	$13\frac{1}{2}$	$1\frac{7}{8}$	2	30
8	$1\frac{7}{8}$	$1\frac{3}{4}$	18	11	$1\frac{7}{8}$	$1\frac{3}{4}$	24	14	$1\frac{7}{8}$	2	32
$8\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{3}{4}$	18	$11\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{3}{4}$	26	$14\frac{1}{2}$	$1\frac{7}{8}$	2	34
9	$1\frac{7}{8}$	$1\frac{3}{4}$	20	12	$1\frac{7}{8}$	2	28	15	$1\frac{7}{8}$	2	34
$9\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{3}{4}$	22	$12\frac{1}{2}$	$1\frac{7}{8}$	2	28	$15\frac{1}{2}$	$1\frac{7}{8}$	2	36
10	$1\frac{7}{8}$	$1\frac{3}{4}$	22	13	$1\frac{7}{8}$	2	30	16	$1\frac{7}{8}$	2	36

Prices on application.

A Heavy-Duty Cutter—Type A 215—similar to those listed above, but with High-Speed Steel Blades, size $\frac{15}{32} \times 1\frac{1}{4} \times 2\frac{1}{4}$ ins., can be furnished in diameters $8\frac{1}{2}$ to 16 ins. Prices on application.



"Production" Inserted Blade Shell End Mills

(Made in U.S.A.)

Type A215 with Stellite Blades

These are general-purpose tools designed for use with standardised style "C" arbors.

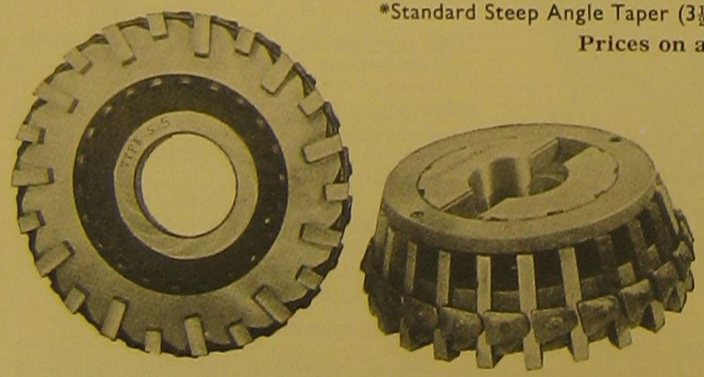
Cutter body is a forging of alloy steel and is very strong. Blade slots are milled and ensure accuracy and rigidity in heavy-duty work.

In ordering state type of cutter, diameter, and if for right or left-hand rotation.

Diam. Ins.	Thick-ness Ins.	Hole Diam. Ins.	No. of Blades	Size of Blades Ins.	Width Keyway Ins.	*Size Arbor	Diam. Ins.	Thick-ness Ins.	Hole Diam. Ins.	No. of Blades	Size of Blades Ins.	Width Keyway Ins.	*Size Arbor
3	$1\frac{1}{2}$	$1\frac{1}{4}$	8	$\frac{1}{4} \times \frac{5}{8} \times 1\frac{1}{2}$	$\frac{33}{64} \times \frac{9}{32}$	$1\frac{1}{4}C\frac{7}{8}$	$5\frac{1}{2}$	$1\frac{3}{4}$	2	12	$\frac{5}{16} \times \frac{3}{4} \times 1\frac{3}{4}$	$\frac{49}{64} \times \frac{7}{16}$	$2C\frac{7}{8}$
$3\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{4}$	10	$\frac{1}{4} \times \frac{5}{8} \times 1\frac{3}{4}$	$\frac{33}{64} \times \frac{9}{32}$	$1\frac{1}{4}C\frac{7}{8}$	6	$1\frac{7}{8}$	2	14	$\frac{5}{16} \times 1 \times 1\frac{7}{8}$	$\frac{49}{64} \times \frac{7}{16}$	$2C\frac{7}{8}$
4	$1\frac{1}{2}$	$1\frac{1}{2}$	9	$\frac{5}{16} \times \frac{3}{4} \times 1\frac{3}{4}$	$\frac{41}{64} \times \frac{3}{8}$	$1\frac{1}{2}C\frac{7}{8}$	$6\frac{1}{2}$	$1\frac{7}{8}$	2	14	$\frac{5}{16} \times 1 \times 1\frac{7}{8}$	$\frac{49}{64} \times \frac{7}{16}$	$2C\frac{7}{8}$
$4\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	11	$\frac{5}{16} \times \frac{3}{4} \times 1\frac{3}{4}$	$\frac{41}{64} \times \frac{3}{8}$	$1\frac{1}{2}C\frac{7}{8}$	7	$1\frac{7}{8}$	2	16	$\frac{5}{16} \times 1 \times 1\frac{7}{8}$	$\frac{49}{64} \times \frac{7}{16}$	$2C\frac{7}{8}$
5	$1\frac{3}{4}$	$1\frac{1}{2}$	12	$\frac{5}{16} \times \frac{3}{4} \times 1\frac{3}{4}$	$\frac{41}{64} \times \frac{3}{8}$	$1\frac{1}{2}C\frac{7}{8}$							

*Standard Steep Angle Taper ($3\frac{1}{2}$ ins. per foot).

Prices on application.

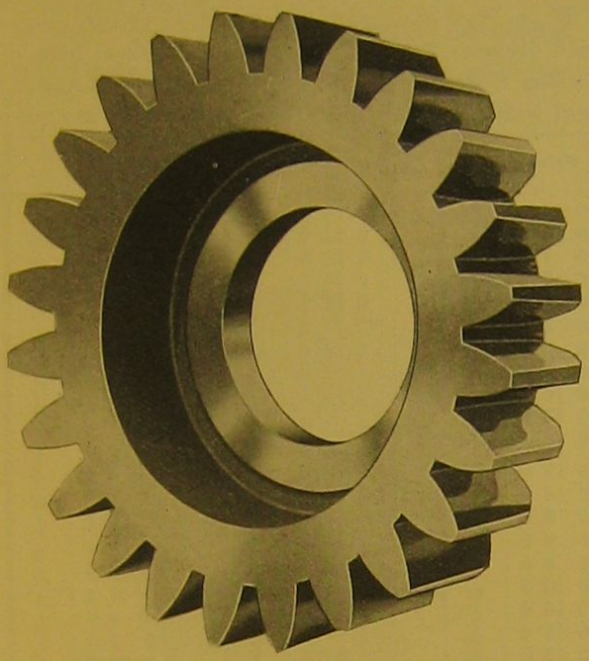


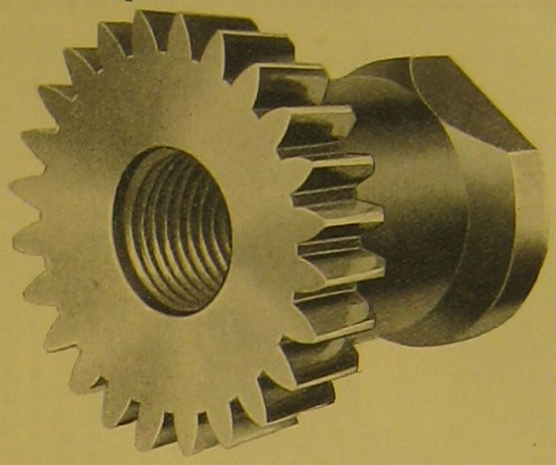
In addition to the tools shown above there is a range of Production Cutters in various styles with Stellite Blades—Style S5, illustrated, is fitted alternate wide and narrow blades held securely in place by clamps. In other types the blades are solidly locked by a wedge and screw. Makers' illustrated catalogue giving full particulars of all cutters sent on request.

Cutter Bodies are made in U.S.A.; **Blades** are British made.

GEAR SHAPER CUTTERS

COMET Fellows Type Gear Shaper Cutters (British Made)





"Comet" Fellows Type Gear Shaper Cutters are made from Super High-Speed Steel Hammered Blanks.
The involute form is ground to a mirror like finish and is held to extremely close limits.
The quality and accuracy of the cutters can be depended upon to give the maximum in gear production with the minimum of cost.
Made in all Diametral and Module Pitches for cutting, Internal and External Gears on Fellows, Drummond and Lorenz machines.

Straight Tooth Cutters for 14½° or 20° Pressure Angle

Standard Sizes for Nos. 6, 61, 64 Fellows Gear Shaping Machines.

Diametral Pitches.		
4 in. cutter	4 to 6 D.P. inclusive and 4/6 to 5/7 D.P. Stub inclusive	Prices on Application
3 in. ,,	7 to 10 ,, ,, ,, 6/8 to 10/12 ,, ,, ,,	
3 in. ,,	11 to 16 ,, ,, ,, 11/14 to 16/21 ,, ,, ,,	
3 in. ,,	18 to 24 ,, ,, ,, 18/24 to 24/32 ,, ,, ,,	
3 in. ,,	26 to 30 ,, ,, ,, 28/37 to 30/40 ,, ,, ,,	
3 in. ,,	32 to 40 ,, ,, ,, 32/42 to 40/54 ,, ,, ,,	
Module Pitches.		
4 in. cutter	4 to 6½ Module inclusive and 4/3 to 6½/5 Module Stub inclusive	
3 in. ,,	2½ to 3¾ ,, ,, ,, 2½/2 to 3¾/2¾ ,, ,, ,,	
3 in. ,,	1¾ to 2¼ ,, ,, ,, 1¾/1½ to 2¼/1¾ ,, ,, ,,	
3 in. ,,	1 to 1½ ,, ,, ,, 1¾ to 1½/1¼ ,, ,, ,,	
Circular Pitches.		
3 in. cutter	⅜ in. to ½ in. C.P. inclusive	
3 in. ,,	½ in. to 5/16 in. ,, ,,	
4 in. ,,	9/16 in. to ¾ in. ,, ,,	

Standard Sizes for Nos. 62, 612, 624 Fellows Gear Shaping Machines (1¾ in.-Hole), also for Spur Gears Nos. 65, 615, 645 Fellows Gear Shaping Machines (1¼ in.-Hole).

Diametral Pitches.		
4 in. cutter	(Nos. 62, 612, and 624 only) 3/4 pitch stub	Prices on Application
4 in. ,,	4 to 10 D.P. inclusive and 4/5 to 10/12 D.P. Stub inclusive	
4 in. ,,	11 to 12 ,, ,, ,, 11/14 to 12/14 ,, ,, ,,	
4 in. ,,	14 to 16 ,, ,, ,, 14/18 to 16/21 ,, ,, ,,	
Module Pitches.		
4 in. cutter	2¾ to 6½ Module inclusive	
4 in. ,,	2¼ to 2½ ,, ,,	
4 in. ,,	1½ to 2 ,, ,,	
Circular Pitches.		
4 in. cutter	⅜ in. to ¾ in. inclusive	
4 in. ,,	¼ in. to 9/16 in. ,,	
Standard Hub Cutters for Internal Gears only.		
2 in. cutter	(approx. diam.) 5 to 30 D.P. inclusive	
2 in. ,,	,, ,, 32 to 40 ,, ,,	

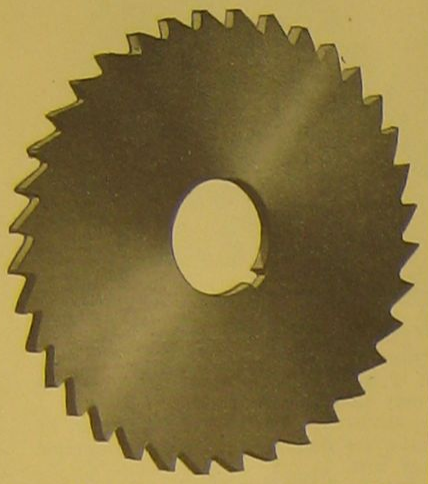
Helical and Special Cutters can also be supplied. Prices on Application.

METAL SLITTING SAWS

COMET H.S.S. Metal Slitting Saws (British Made)

Standard Holes

2½, 3, 4, 5, 6, 7 and 8-inch diameter Saws ... ... 1-inch hole
9, 10, 11 and 12-inch diameter Saws... ... ... 1, 1¼ or 1½-inch hole
Other sizes of holes can be supplied as desired



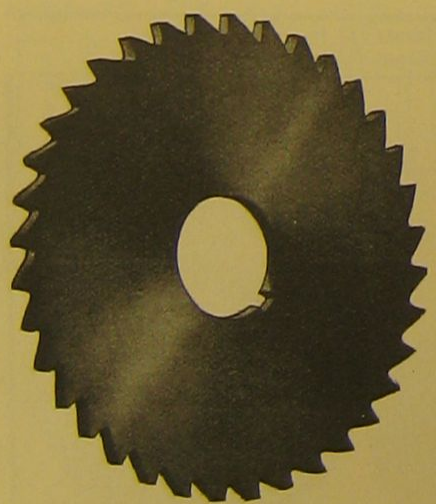
Ground slightly concave on the sides to give clearance

Diam. Ins.	Price	Face Ins.	Diam. Ins.	Price	Face Ins.	Diam. Ins.	Price	Face Ins.	Diam. Ins.	Price	Face Ins.
2½	£0 6 3	1/32	3½	£0 10 0	1/32	5	£0 14 0	1/16	8	£1 10 0	1/8
	0 6 0	3/64		0 8 6	3/64		0 13 9	3/64		1 14 0	5/32
	0 5 9	1/16		0 7 6	1/16		0 13 6	3/32		1 18 0	3/16
	0 6 0	3/64		0 7 9	3/64		0 14 3	3/64		2 6 0	7/32
	0 6 3	3/32		0 8 3	3/32		0 15 0	1/8		2 16 0	1/4
	0 6 6	3/64		0 8 6	3/64		0 17 0	5/32	9	2 5 0	1/16
	0 6 9	1/8		0 9 0	1/8		0 18 6	3/16		2 3 3	3/64
	0 7 6	5/32		0 9 9	5/32		1 2 0	3/32		2 1 3	5/32
	0 8 3	3/16		0 10 9	3/16		1 6 6	1/4		1 19 6	7/64
	0 10 3	7/32		0 13 6	7/32		1 4 0	5/32		1 17 6	1/8
	0 11 6	1/4		0 16 3	1/4		1 1 0	3/64		2 2 6	5/32
2¾	0 6 9	1/32	4	0 12 0	5/32	6	0 18 0	1/16		2 7 6	3/16
	0 6 3	3/64		0 10 0	3/64		0 17 3	3/64		2 18 0	7/32
	0 6 0	1/16		0 8 6	1/16		0 16 6	3/32		3 9 0	1/4
	0 6 3	3/64		0 9 0	3/64		0 18 0	7/64		2 15 0	1/8
	0 6 6	3/32		0 9 6	5/32		0 19 3	1/8		2 13 3	3/64
	0 6 9	7/64		0 10 0	7/64		1 1 3	5/32		2 11 3	5/32
	0 7 0	1/8		0 10 6	1/8		1 4 0	3/16		2 9 9	7/64
	0 7 6	5/32		0 11 6	5/32		1 9 0	7/32	10	2 7 6	1/8
	0 8 3	3/16		0 13 0	3/16		1 15 3	1/4		2 15 0	5/32
	0 10 9	7/32		0 16 0	7/32		1 8 0	1/16		3 2 0	3/16
	0 12 3	1/4		0 19 3	1/4		1 7 0	3/64		3 12 6	7/32
3	0 7 3	1/32		0 15 0	5/32		1 6 3	3/32		4 4 0	1/4
	0 6 6	3/64		0 13 0	3/64		1 5 0	7/64		2 17 6	1/8
	0 6 3	1/16		0 11 3	1/16	7	1 4 6	1/8		3 5 0	5/32
	0 6 6	3/64		0 11 6	3/32		1 6 0	5/32	11	3 12 6	3/16
	0 6 9	3/32	4½	0 12 9	1/8		1 8 6	3/16		4 4 6	7/32
	0 7 0	7/64		0 14 6	5/32		1 16 0	7/32		4 18 0	1/4
	0 7 3	1/8		0 16 0	3/16		2 5 0	1/4		3 7 6	1/8
	0 7 9	5/32		0 19 0	7/32		1 18 0	1/16		3 15 0	5/32
	0 8 3	3/16		1 3 0	1/4	8	1 16 0	3/64	12	4 2 6	3/16
	0 11 0	7/32	5	0 18 0	1/32		1 14 0	3/32		4 17 6	7/32
	0 13 0	1/4		0 16 0	3/64		1 12 0	7/64		5 15 0	1/4

All sizes shown are to B.S.I. Standards.

COMET Semi H.S.S. Metal Slitting Saws

These Saws are made from a special alloy, containing about 2% Tungsten, and are hardened to cut metals. They are ground slightly concave on the sides to give clearance.



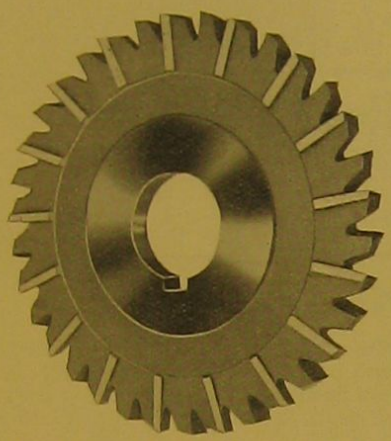
Diam. Ins.	Thickness In.	Price Each	Diam. Ins.	Thickness In.	Price Each	Diam. Ins.	Thickness In.	Price Each
2½	1/32	4/6	3	3/32	5/-	5	3/16	12/-
	3/64	4/3		7/64	5/3		1/16	10/-
	1/16	4/-		1/8	5/6		5/64	10/9
	5/64	4/3		5/32	5/9		3/32	11/6
	3/32	4/6		3/16	6/-	6	7/64	12/3
	7/64	4/9	4	1/32	6/6		1/8	13/-
	1/8	5/-		3/64	6/3		5/32	14/-
	5/32	5/3		1/16	5/9		3/16	15/-
	3/16	5/6		5/64	6/-		1/16	12/-
2¾	1/32	4/9		3/32	6/6		5/64	13/-
	3/64	4/6		7/64	7/-		3/32	14/-
	1/16	4/3		1/8	7/6	7	7/64	15/-
	5/64	4/6		5/32	8/3		1/8	16/-
	3/32	4/9		3/16	9/-		5/32	17/-
	7/64	5/-	5	1/32	8/6		3/16	18/-
	1/8	5/3		3/64	8/3	8	1/16	14/-
	5/32	5/6		1/16	8/-		5/64	15/-
	3/16	5/9		5/64	8/6		3/32	16/-
3	1/32	5/-		3/32	9/-		7/64	17/-
	3/64	4/9		7/64	9/6		1/8	18/-
	1/16	4/6		1/8	10/-		5/32	20/-
	5/64	4/9		5/32	11/-		3/16	23/-

SCREW SLOTTING CUTTERS AND METAL SLITTING SAWS

H.S.S. Metal Slitting Saws with Side Teeth (British Made)

In these Saws which are similar to thin side milling cutters, the side teeth are relieved between the edge of hub and bottom of teeth.

They are particularly well adapted for slotting soft metals and especially useful for deep cuts in iron and steel.



STAGGERED TOOTH STYLE FOR SAWS $\frac{5}{32}$ in. THICK AND OVER.

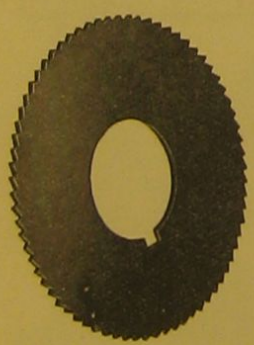
Teeth on Saws under $\frac{5}{32}$ in. are not staggered.

Sizes and Prices

Diam. Ins.	Thickness Ins.	Hole Ins.	Price Each	Diam. Ins.	Thickness Ins.	Hole Ins.	Price Each
3	$\frac{1}{16}$	1	£0 15 0	7	$\frac{3}{32}$	1, $1\frac{1}{4}$ or $1\frac{1}{2}$	£2 17 6
	$\frac{3}{32}$		0 14 6		$\frac{1}{8}$		2 10 0
	$\frac{1}{8}$		0 15 0		$\frac{5}{32}$		3 2 0
	$\frac{5}{32}$		0 16 6		$\frac{3}{16}$		3 12 0
	$\frac{3}{16}$		0 18 0		$\frac{7}{32}$		4 2 0
	$\frac{7}{32}$		1 2 0		$\frac{1}{4}$		4 12 0
	$\frac{1}{4}$		1 6 6		$\frac{5}{16}$		5 3 0
4	$\frac{1}{16}$		0 18 0		$\frac{3}{8}$		6 3 0
	$\frac{3}{32}$		0 16 6	8	$\frac{3}{32}$		4 0 0
	$\frac{1}{8}$		0 17 6		$\frac{1}{8}$		3 10 0
	$\frac{5}{32}$		1 0 0		$\frac{5}{32}$		4 5 0
	$\frac{3}{16}$		1 3 6		$\frac{3}{16}$		4 17 6
	$\frac{7}{32}$		1 8 0		$\frac{7}{32}$		5 10 0
	$\frac{1}{4}$		1 13 0		$\frac{1}{4}$		6 5 0
5	$\frac{1}{16}$	1 or $1\frac{1}{4}$	1 5 0		$\frac{5}{16}$		7 0 0
	$\frac{3}{32}$		1 2 6		$\frac{3}{8}$		7 15 0
	$\frac{1}{8}$		1 5 0	9	$\frac{1}{8}$		4 15 0
	$\frac{5}{32}$		1 10 0		$\frac{5}{32}$		5 12 6
	$\frac{3}{16}$		1 14 0		$\frac{3}{16}$		6 7 6
	$\frac{7}{32}$		1 19 0		$\frac{7}{32}$		7 2 6
	$\frac{1}{4}$		2 5 0		$\frac{1}{4}$		8 0 0
	$\frac{5}{16}$		2 17 6	10	$\frac{1}{8}$		6 0 0
6	$\frac{1}{16}$		2 2 6		$\frac{5}{32}$		7 0 0
	$\frac{3}{32}$		1 17 6		$\frac{3}{16}$		7 17 6
	$\frac{1}{8}$		1 15 0		$\frac{7}{32}$		8 15 0
	$\frac{5}{32}$		2 2 6		$\frac{1}{4}$		9 15 0
	$\frac{3}{16}$		2 7 6				
	$\frac{7}{32}$		2 13 6				
	$\frac{1}{4}$		3 0 6				
	$\frac{5}{16}$		3 17 0				

All sizes are to B.S.I. Specification.

COMET Carbon Steel Screw Slotting Cutters



These Cutters have a fine pitch of teeth especially adapted to the slotting of screw heads and similar work.

They are not ground on the sides.

Gauge No. American Standard	Diam. of Cutter Ins.	Hole In.	Diameter of Screw Head to beslotted In.	Price Each	Thickness of Cutter in Decimals In.	Gauge No. American Standard	Diam. of Cutter Ins.	Hole In.	Diameter of Screw Head to beslotted In.	Price Each	Thickness of Cutter In Decimals In.
5	$2\frac{3}{4}$	1 or $\frac{3}{4}$	$1\frac{5}{16}$	3/9	·182	14	$1\frac{3}{4}$	$\frac{5}{8}$ or $\frac{1}{2}$	$\frac{3}{8}$	–/10	·064
6	$2\frac{3}{4}$		$1\frac{1}{8}$	3/2	·162	15	$1\frac{3}{4}$		$\frac{11}{32}$	–/10	·057
7	$2\frac{3}{4}$		1	2/9	·144	16	$1\frac{3}{4}$		$\frac{5}{16}$	–/10	·051
8	$2\frac{3}{4}$		$\frac{7}{8}$	2/4	·128	17	$1\frac{3}{4}$		$\frac{9}{32}$	–/10	·045
9	$2\frac{3}{4}$		$\frac{3}{4}$ — $\frac{13}{16}$	2/1	·114	18	$1\frac{3}{4}$		$\frac{1}{4}$	–/10	·040
10	$2\frac{3}{4}$		$\frac{5}{8}$	1/11	·102	19	$1\frac{3}{4}$		$\frac{7}{32}$	–/10	·035
11	$2\frac{3}{4}$			1/8	·091	20	$1\frac{3}{4}$		$\frac{3}{16}$	–/10	·032
12	$2\frac{3}{4}$		$\frac{1}{2}$ — $\frac{9}{16}$	1/6	·081	21	$1\frac{3}{4}$		$\frac{5}{32}$	–/10	·028
13	$2\frac{3}{4}$			1/6	·072	22	$1\frac{3}{4}$			–/10	·025
14	$2\frac{3}{4}$		$\frac{3}{8}$ — $\frac{7}{16}$	1/6	·064	23	$1\frac{3}{4}$			–/10	·023
15	$2\frac{3}{4}$		$\frac{11}{32}$	1/3	·057	24	$1\frac{3}{4}$			–/8	·020
16	$2\frac{3}{4}$		$\frac{5}{16}$	1/3	·051	25	$1\frac{3}{4}$			–/8	·018
17	$2\frac{3}{4}$			1/1	·045	26	$1\frac{3}{4}$			–/8	·016
18	$2\frac{3}{4}$		$\frac{1}{4}$ — $\frac{9}{32}$	1/1	·040	27	$1\frac{3}{4}$			–/8	·014
19	$2\frac{3}{4}$		$\frac{1}{16}$ — $\frac{7}{32}$	1/1	·035	28	$1\frac{3}{4}$			–/8	·012
20	$2\frac{3}{4}$			1/1	·032	30	$1\frac{3}{4}$			–/8	·010
21	$2\frac{3}{4}$		$\frac{1}{8}$	–/10	·028	32	$1\frac{3}{4}$			–/8	·008
22	$2\frac{3}{4}$			–/10	·025	34	$1\frac{3}{4}$			–/8	·006
23	$2\frac{3}{4}$			–/10	·023						
24	$2\frac{3}{4}$			–/10	·020						
25	$2\frac{3}{4}$			–/10	·018						
26	$2\frac{3}{4}$			–/10	·016						
27	$2\frac{3}{4}$			–/10	·014						
28	$2\frac{3}{4}$			–/10	·012						
30	$2\frac{3}{4}$			–/10	·010						
32	$2\frac{3}{4}$			–/10	·008						
34	$2\frac{3}{4}$			–/10	·006						

HOLLOW MILLS—ARBORS

Super COMET H.S.S. Hollow Mills (British Made)

FOR STEEL FOR BRASS

Containing 18 per cent Tungsten.

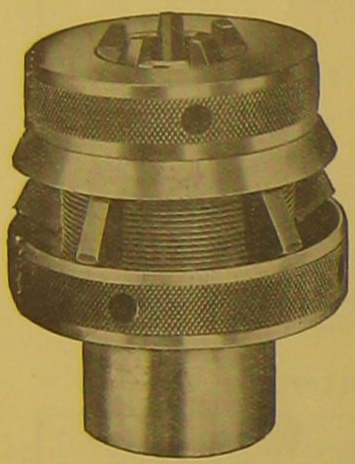
These Mills are of high speed steel and are made with two forms of teeth, one undercut, for milling steel, and the other straight, for milling brass. Always specify which is required.

Diam. of Hole, ins.	3/32	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
Outside diam. ,,	5/8	5/8	5/8	5/8	5/8	5/8	3/4	3/4	1	1	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4	1 3/4
Whole length ,,	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4	1 3/4	1 3/4	2	2	2	2	2	2 1/4	2 1/4	2 1/4
Price Each ...	11/6	11/6	11/6	11/6	11/6	11/6	12/6	12/6	12/6	13/6	13/6	13/6	17/9	17/9	22/-	22/-	22/-	27/3	27/3	27/3

"Union" Carbon Steel Hollow Mills (Made in U.S.A.)

Diam. of hole ... ins.	3/32	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1
Outside diam. ... ,,	5/8	5/8	5/8	5/8	5/8	5/8	3/4	3/4	1	1	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4	1 3/4
Whole length ... ,,	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4	1 3/4	1 3/4	2	2	2	2	2	2 1/4	2 1/4	2 1/4
Price Each ...	5/8	5/8	5/8	5/8	5/8	5/8	8/4	8/4	8/4	11/3	11/3	11/3	12/6	12/6	14/-	14/-	14/-	16/8	16/8	16/8

Adjustable Hollow Mill (Made in U.S.A.)



The parts of this Tool are few and simple, the adjustment positive; the cutters are solidly backed up against the nut, firmly clamped into position by the cap, and may be removed instantly for grinding. When desired, a drill and facing tool may be placed in the shank. The mill also furnishes an excellent substitute for a chuck to hold twist drills, etc., by setting the cutter blades down to grasp the drill.

Do not grind the inner edge of the blades, that is the edge which is parallel with the finished work. Grind the face only. This is most imperative.

To use a counterbore or facing tool, tighten the necessary leader in the blades.

In changing from one size to another slacken the cap slightly and press the blades back against the adjusting nut, then screw up the nut until the mill cuts the proper size, and then tighten the cap.

Threaded dies can be inserted, if required, to use the head as an adjustable die.

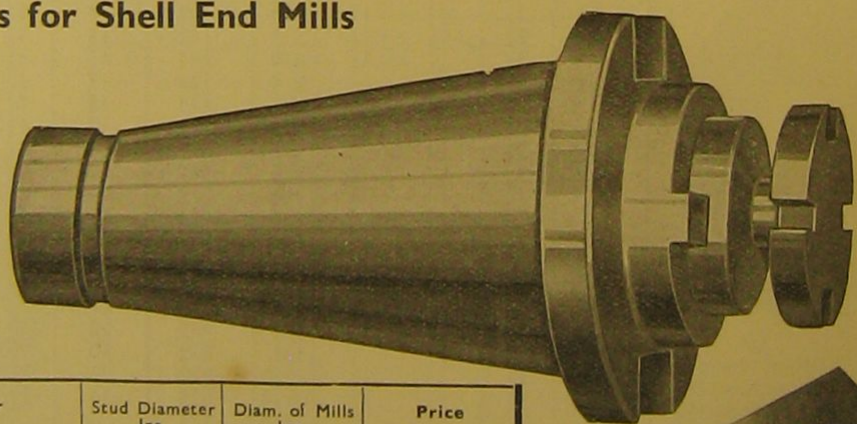
No.	Capacity Ins.	Hole Ins.	Outside Diam. Ins.	Length that can be turned Ins.	Size of Blades Ins.	Price Complete	Unfinished Blades Per Set
0	1/16 to 5/16	7/16	1 3/4	1 3/4	3/32 × 7/32	£4 7 6	£1 0 0
1	1/4 ,, 1/2	7/8	2 3/4	2 3/4	3/16 × 7/16	5 5 0	1 5 0
2	1/2 ,, 1	1 1/8	3 7/8	3	1/4 × 9/16	6 4 9	1 6 6
3	1 ,, 1 1/2	1 1/8	4 3/8	3 1/4	1/4 × 9/16	7 0 0	1 8 3
4	1 1/2 ,, 2	1 9/16	5	3 1/2	1/4 × 9/16	7 17 6	1 9 9
5	2 ,, 2 1/2	1 3/4	6 3/8	4	1/4 × 9/16	14 2 3	2 3 9

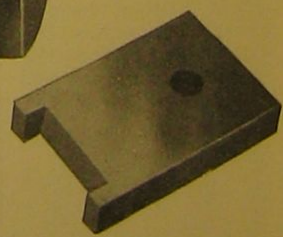
Non-Sticking Arbors for Shell End Mills

These Arbors are of the new non-stick type—they possess unusual strength, being made from specially selected, tested, and heat-treated forgings.

All arbors are of maintained accuracy, and are subjected to rigid tests before leaving the factory.

Chrome nickel heat-treated screws for holding the shell end mill are furnished with all arbors.

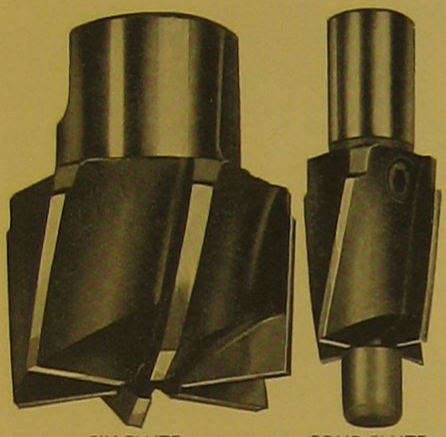




No.	Outside Taper	Stud Diameter Ins.	Diam. of Mills Ins.	Price
1/2 C 5/8 3/4 C 7/8 1 C 7/8 *1 1/4 C 7/8 *1 1/2 C 7/8 *2 C 7/8	To suit standardised spindle end. Taper 3 1/2 ins. per foot on diameter.	1/2 3/4 1 1 1/4 1 1/2 2	1 1/4–1 1/2 1 3/4–2 2 1/4–2 1/2–2 3/4 3–3 1/2 4–4 1/2–5 5 1/2–6	**On Application.**

*Wrench furnished with these arbors.

COMET Counterbores, Spotfacers, Countersinks, Etc. (British Made)



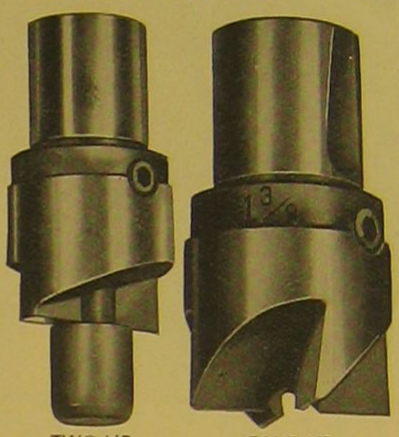
SIX FLUTE FOUR FLUTE
STANDARD COUNTERBORES

These tools embody all the requirements of the modern plant—simplified design, sturdy construction, high quality material, expert workmanship.
The tools do not "stick" in the holders, and pilots are interchangeable in all tools.

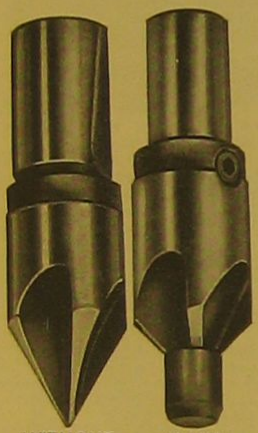
COUNTERBORES. Sizes $\frac{1}{4}$ to $1\frac{7}{8}$ ins. diam. have four flutes, and sizes 2 to 3 ins. six flutes.

SPOTFACERS. Made with two or four lips. The two-lip tool gets under the scale easily.

COUNTERSINKS are supplied either with or without pilot hole and to any desired angle. In ordering, specify included angle; and if pilot required, state size.



TWO LIP FOUR LIP
STANDARD SPOTFACERS



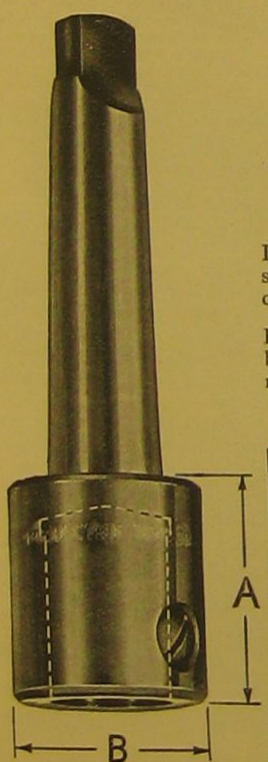
WITHOUT PILOT WITH PILOT
STANDARD COUNTERSINKS

Sizes and Prices

Counterbores, Spotfacers and Countersinks

*Cutter Diam. Ins.	Shank Diam. Ins.	Cutter Length Ins.	Pilot Hole Diam. Ins.	Fits Holder Type	Price Each	*Cutter Diam. Ins.	Shank Diam. Ins.	Cutter Length Ins.	Pilot Hole Diam. Ins.	Fits Holder Type	Price Each
$\frac{1}{4}$		$1\frac{7}{16}$	$\frac{1}{8}$	A	£0 15 8	$1\frac{5}{16}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	£1 17 6
$\frac{5}{16}$		$1\frac{7}{16}$	$\frac{1}{8}$	A	0 16 8	$1\frac{3}{8}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	1 19 7
$\frac{3}{8}$		$1\frac{7}{16}$	$\frac{1}{8}$	A	0 17 9	$1\frac{7}{16}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	2 1 8
$\frac{7}{16}$	$\frac{3}{8}$	$1\frac{7}{16}$	$\frac{1}{8}$	A	0 18 9	$1\frac{1}{2}$	1	$1\frac{3}{8}$	$\frac{3}{8}$	C	2 5 10
$\frac{1}{2}$		$1\frac{7}{16}$	$\frac{3}{16}$	A	0 19 10	$1\frac{5}{8}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	2 10 0
$\frac{9}{16}$		$1\frac{7}{16}$	$\frac{3}{16}$	A	1 0 10	$1\frac{3}{4}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	2 14 2
$\frac{5}{8}$		$1\frac{7}{16}$	$\frac{3}{16}$	A	1 1 11	$1\frac{7}{8}$		$1\frac{3}{8}$	$\frac{3}{8}$	C	2 18 4
$\frac{11}{16}$		$1\frac{7}{16}$	$\frac{3}{16}$	B	1 2 11	2		$1\frac{1}{2}$	$\frac{1}{2}$	D	3 2 6
$\frac{3}{4}$		$1\frac{3}{8}$	$\frac{1}{4}$	B	1 4 0	$2\frac{1}{8}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	3 7 9
$\frac{13}{16}$		$1\frac{3}{8}$	$\frac{1}{4}$	B	1 5 0	$2\frac{1}{4}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	3 12 11
$\frac{7}{8}$	$\frac{5}{8}$	$1\frac{3}{8}$	$\frac{1}{4}$	B	1 6 1	$2\frac{3}{8}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	3 19 2
$\frac{15}{16}$		$1\frac{3}{8}$	$\frac{1}{4}$	B	1 7 1	$2\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$\frac{1}{2}$	D	4 5 5
1		$1\frac{3}{8}$	$\frac{1}{4}$	B	1 8 2	$2\frac{5}{8}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	4 13 9
$1\frac{1}{16}$		$1\frac{3}{8}$	$\frac{1}{4}$ or $\frac{3}{8}$	B or C	1 10 3	$2\frac{3}{4}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	5 4 2
$1\frac{1}{8}$	$\frac{5}{8}$	$1\frac{3}{8}$	$\frac{1}{4}$ or $\frac{3}{8}$	B or C	1 11 3	$2\frac{7}{8}$		$1\frac{1}{2}$	$\frac{1}{2}$	D	5 14 7
$1\frac{3}{16}$	or 1	$1\frac{3}{8}$	$\frac{1}{4}$ or $\frac{3}{8}$	B or C	1 13 4	3		$1\frac{1}{2}$	$\frac{1}{2}$	D	6 5 0
$1\frac{1}{4}$		$1\frac{3}{8}$	$\frac{1}{4}$ or $\frac{3}{8}$	B or C	1 15 5						

*Cutters are approximately ·008 in. larger than the nominal diameters listed.



Holders

Interchangeable Holders are made in four sizes which cover the complete range of cutters listed above.

Regularly supplied with Morse taper shanks, but straight and special shanks can be furnished when desired.

Sizes and Prices

Type	Morse Taper	Cutter Range Inclusive Ins.	Length A Ins.	Diam. B Ins.	Price Each
A	1	$\frac{1}{4}$ to $\frac{5}{8}$	$1\frac{5}{8}$	$\frac{7}{8}$	16/8
A	2	$\frac{1}{4}$,, $\frac{5}{8}$	$1\frac{5}{8}$	$\frac{7}{8}$	16/8
B	1	$\frac{11}{16}$,, $1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{3}{16}$	19/6
B	2	$\frac{11}{16}$,, $1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{3}{16}$	19/6
B	3	$\frac{11}{16}$,, $1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{3}{16}$	19/6
C	2	$1\frac{1}{16}$,, $1\frac{7}{8}$	$1\frac{13}{16}$	$1\frac{5}{8}$	25/-
C	3	$1\frac{1}{16}$,, $1\frac{7}{8}$	$1\frac{13}{16}$	$1\frac{5}{8}$	25/-
C	4	$1\frac{1}{16}$,, $1\frac{7}{8}$	$1\frac{13}{16}$	$1\frac{5}{8}$	25/-
D	3	2 ,, 3	$2\frac{1}{4}$	$2\frac{1}{8}$	33/4
D	4	2 ,, 3	$2\frac{1}{4}$	$2\frac{1}{8}$	33/4
D	5	2 ,, 3	$2\frac{1}{4}$	$2\frac{1}{8}$	33/4

Interchangeable Pilots

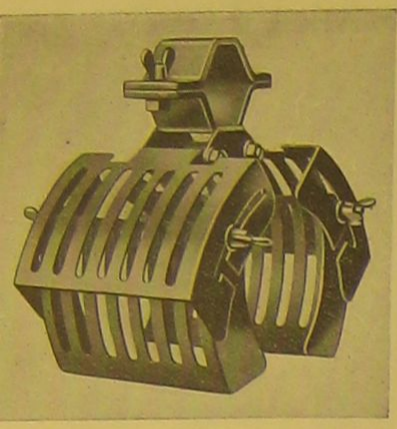
for Counterbores, Spotfacers and Countersinks

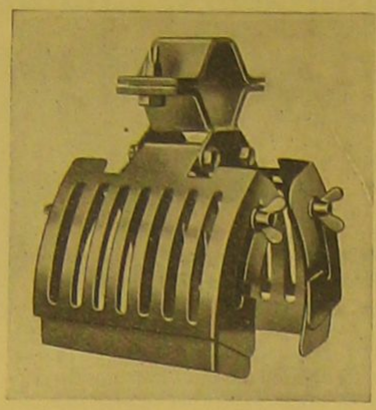
Sizes and Prices

Pilot Diam. Nominal Size Ins.	Shank Diam. Nominal Size Ins.	Price Each
$\frac{1}{8}$ to $\frac{3}{8}$	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, or $\frac{3}{8}$	2/-
$\frac{25}{64}$ to $\frac{9}{16}$	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, or $\frac{1}{2}$	2/3
$\frac{27}{64}$ to 1	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, or $\frac{1}{2}$	3/4
$1\frac{1}{16}$	$\frac{1}{4}$, $\frac{3}{8}$, or $\frac{1}{2}$	4/6
$1\frac{1}{8}$ or $1\frac{3}{16}$	$\frac{3}{8}$ or $\frac{1}{2}$	5/-
$1\frac{1}{4}$,, $1\frac{5}{16}$	$\frac{3}{8}$,, $\frac{1}{2}$	5/7
$1\frac{3}{8}$,, $1\frac{7}{16}$	$\frac{3}{8}$,, $\frac{1}{2}$	6/2
$1\frac{1}{8}$	$\frac{3}{8}$,, $\frac{1}{2}$	6/8
$1\frac{3}{16}$	$\frac{3}{8}$,, $\frac{1}{2}$	7/-
$1\frac{1}{4}$	$\frac{3}{8}$,, $\frac{1}{2}$	7/3
$1\frac{5}{16}$	$\frac{3}{8}$,, $\frac{1}{2}$	7/10
$1\frac{7}{8}$	$\frac{3}{8}$,, $\frac{1}{2}$	8/4
2	$\frac{3}{8}$,, $\frac{1}{2}$	

Note.—Pilot diameters advance by 64ths from $\frac{1}{8}$ to 1 inch; by 16ths from 1 to $1\frac{1}{2}$ ins.; and by 8ths from $1\frac{1}{2}$ to 2 ins.
All pilots are ·006 inch under size.
When ordering, specify diameter and size of shank.

MILLING MACHINE CUTTER GUARDS





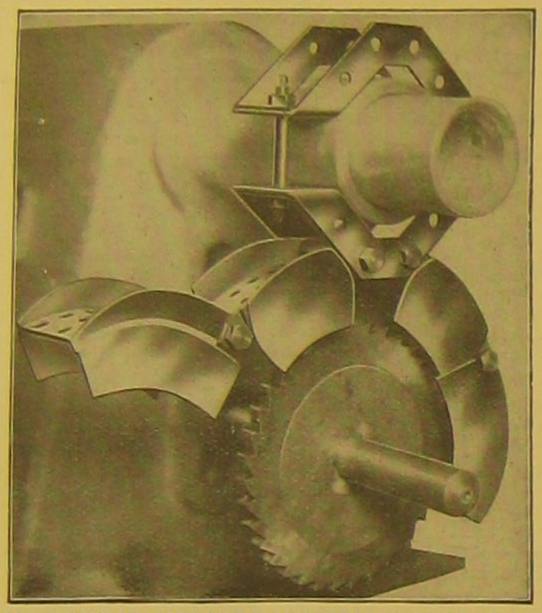
"Maxadjust" Guards for Milling Machines (British Made)

The "Maxadjust"—the latest improvement in guards of this type gives maximum adjustment, visibility and utility with utmost security. **Instantly adjusted by means of thumb screws,** the guards take care of varying size cutters and working levels. **In addition the lower sections can be set to any position** independently of their position in the vertical slots. They can also be telescoped or removed entirely.

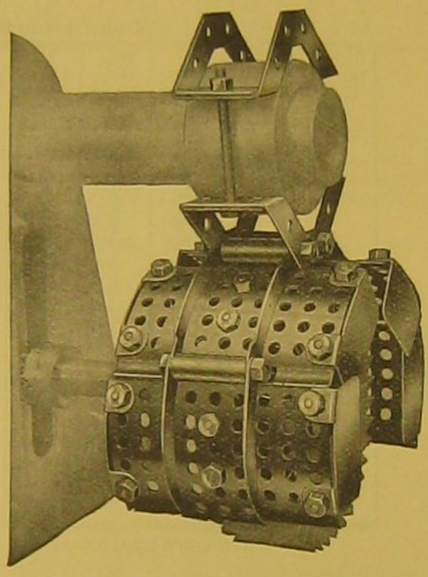
Available only in 6 inch widths.

Price, with Hexagonal brackets to fit steadies 2¼ to 4 ins. diameter ... ... **19/6 each**

Price, with special Vee Slide Brackets to fit rectangular overarm of Cincinnati Milling Machines ... ... **£1 5 6 each**



No. 2.—GUARD WITH SIDE FLANGES FOR CUTTERS UP TO 2 INCHES WIDE



No. 4.—GUARD WITH PLAIN FINGERS, FITTED WITH 6-INCH APRONS AND SIDE FLANGES

"Security" Type Guards

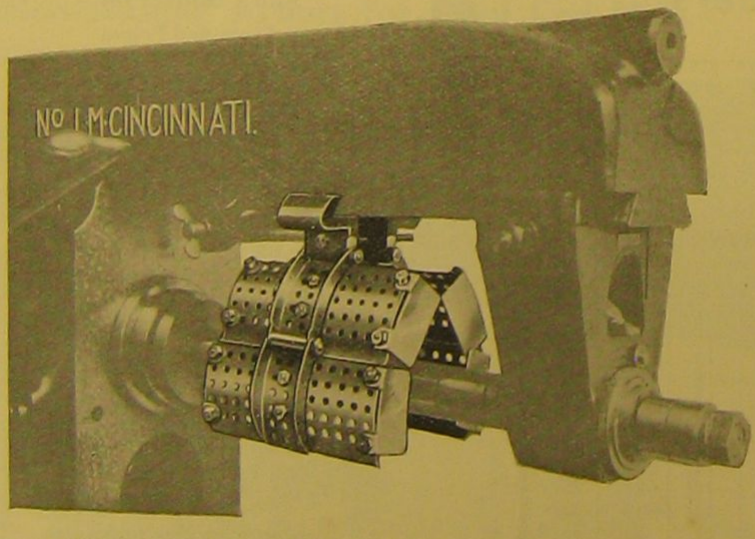
This is a Guard of sound construction and practical utility. It provides a safety device which in no way interferes with operation.

All parts are standardised and interchangeable, and by the addition of either extra fingers or extension aprons **the guard can be built up to any width or height.**

When fixed the guard is rigid and yet can be easily swung away for changing of cutter, inspection of work etc. The double-jointed fingers allow the guard to follow contour of cutter, whilst the perforations provide for sight of cutter and insertion of suds pipe.

Hexagonal standard brackets fit all sizes of steady from 2 to 4 inches diameter without any alteration, and only occupy a space of 2½ inches on the arm. Bracket for 4½-inch overarms can be supplied when required without extra charge. Larger sizes at slight extra cost.

"Security" guards specially built up to customers' specifications can be supplied in a few days.



SHOWING "SECURITY" GUARD WITH SPECIAL BRACKETS FITTED TO RECTANGULAR OVERARM OF CINCINNATI MILLER

Standard Types and Prices

No. 2 pattern with side flanged fingers for side and face cutters up to 2 inches wide **17/6 each**

No. 4 pattern with 4 plain fingers, 8 adjustable side flanges, and detachable aprons 6 or 8 inches long, for cylindrical and gang cutters **19/6 each**

The flanges can be placed in various positions on the aprons to suit different sizes of cutters.

The above prices include all bolts, screws, and nuts necessary for erection.

All these guards meet the requirements of the new Horizontal Milling Machine Regulations, 1927.

Special Type Guard for Cincinnati Millers

"Security" Milling Cutter Guards can be supplied, **fitted with a specially designed bracket for attaching to the rectangular overarm of Cincinnati Milling Machines.**

Prices

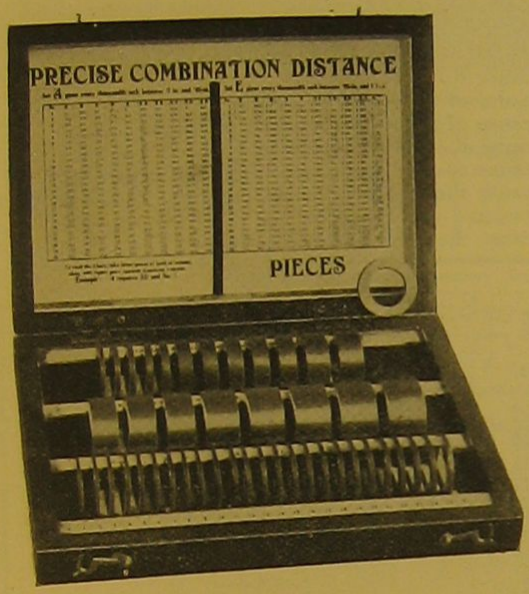
With side flanges as No. 2 pattern ... **£1 3 6**

,, 6 or 8-in. aprons and adjustable side flanges as No. 4 pattern **£1 5 6**

"Security" Grinding Wheel Guards can be supplied.

Particulars on application.

"Precise" Combination Distance Pieces, "Acme" Series



The "Acme" Series has fewer pieces than the other "Precise" sets, but is suitable for general spacing and dimensioning purposes, especially in assembling straddle milling cutters.

Set A gives every 1/1000th inch between ·2 in. and ·45 in.
,, C ,, ,, ,, ,, ,, ·45 ,, ,, ·7 ,,
,, M ,, ,, ,, ,, ,, ·7 ,, ,, ·95 ,,
,, E ,, ,, ,, ,, ,, ·95 ,, ,, 1·2 ,,

Prices

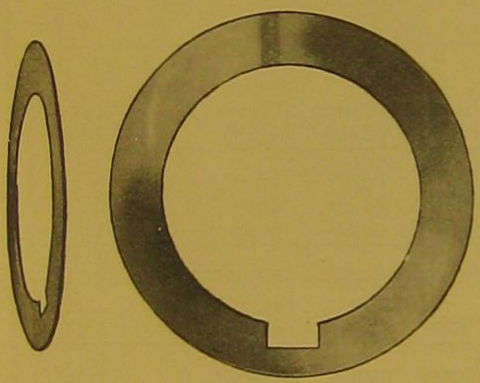
To suit Arbors	1 or 1¼ in.	1½ in.	2 in.
Any single set	£2 12 6	£3 15 0	£5 15 0
Combination of any two sets	3 2 6	4 4 6	6 12 6
,, ,, three sets	3 11 6	4 14 0	7 7 0
Full set as Chart	4 0 0	5 3 0	8 5 0
1-in. Extension Piece... each	0 2 0	0 2 6	0 3 3
2-in. ,, ,, ,,	0 3 0	0 3 9	0 4 6
3-in. ,, ,, ,,	0 5 0	0 5 9	0 6 3
* Single Pieces from ·1 to ·125 in. rising in thousandths of an inch each	0 1 3	0 2 0	0 2 6

* Supplied any quantity without Chart or Box with dimension etched on each piece.

Distance Pieces in Block Gauge Form

"Acme" Series

With ⅞ in. square faces. For tool setting, marking-off purposes, etc.
Prices ... ... **Complete Set, £6 10 0.**



COMET Steel Spacing Washers

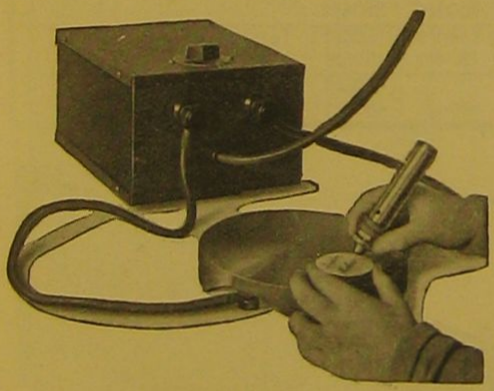
(British Made)

For Use on the Milling Machine

These Steel Spacing Washers can be supplied in the following sizes: ·003, ·004, ·005, ·006 to fit either 1, 1¼ or 1½ inch arbors.

Size, with	1-in. hole	1¼-in. hole	1½-in. hole
Price, per 100 ...	10/–	10/–	12/6

Put up in packets of 25 per size.



Taylor-Hobson Electric Etcher (British Made)

For Alternating Current

This can be used to write on hardened steel by an unskilled operator almost as quickly and easily as with a pencil.

It can be used either in the hand or in an engraving machine. When used in the machine the holder takes the place of the usual cutter and spindle, and with standard copies the utmost neatness and accuracy are secured. If desired, the holder can be supplied with writing point but without the transformer and other accessories. This enables a customer already owning an electrical etching apparatus to enjoy the advantages of this improved design of writing holder, and the convenience of using it in an engraving machine if he has one.

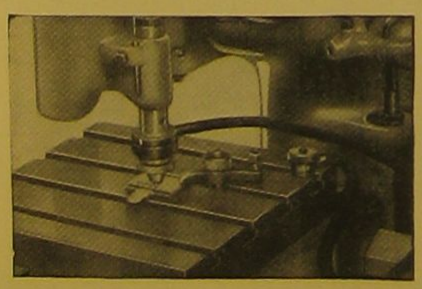
The Etcher will write easily on any metal, hard or soft, including tool steel, stainless steel, stellite, carboloy, etc. It affords the simplest and quickest way of marking directly **after hardening** all kinds of finished tools, cutters, motor-car and aero-engine parts, and without the cost and trouble of chemical etching.

An A.C. supply is necessary, and the voltage must be specified when ordering. Very little current is used, and a supply from any ordinary lamp-holder suffices. This current actuates a transformer which supplies a low voltage current for writing, and is practically foolproof.

A four-way switch is provided for varying the strength of the writing current.

The writing point, which is easily replaced, is made from a special heat-resisting material which far outlasts the usual copper point.

Price, complete with Plate for Hand Use **£15 0 0**
,, **Extra Writing Points** ... ... **0 2 6 each**



MOLYBDENUM HACK SAW BLADES

Millers Falls "Blu-mol" Hack Saw Blades (Made in U.S.A.)

"Blu-Mol" Blades set an entirely new standard of hack saw efficiency.

These amazing new Molybdenum Alloy Steel Hack Saw Blades cut any metal—chrome nickel, stainless steel—no matter how hard, and consistently show 25% to 60% more cutting life.

What "BLU-MOL" Blades do.

Take Heavier Feeds —because they are tougher.
Take Higher Speeds—because of their special temper.
Cut Harder Metals —because of their own extreme hardness.
Cut Straighter —because they wear evenly on both sides of teeth.
Cut Faster —because coarser teeth may be used without breaking.
Have Longer Life —because their Molybdenum Tungsten Carbides resist abrasion.
Save Money —because they reduce cutting costs.

Users say of "BLU-MOL":

"We do a lot of cutting on stainless steels of all types, and also on Chrome Nickel Molybdenum Die Block Bars as large as 10" thick 16" wide. Inasmuch as most of our cutting is on alloy steel which put a saw blade to quite a test, our saw problem was a very serious one for a number of years, particularly in cutting stainless.

"We used regular power blades for years, but we are glad to say that since we have been using the Blu-Mol blade we have encountered no difficulty at all on the stainless, or on the die blocks."

"Having found Blu-Mol Molybdenum Hack Saw Blades to equal the performance of regular power blades in cutting our die blocks, it is our intention to standardize on Blu-Mol. We find that in many special applications they out-perform the others."

"Blu-Mol Blades are certainly good. I am rather surprised at the results we are getting."

"In reference to the sample Molybdenum Blu-Mol Machine Saw Blade you recently sent us, we tested this out and found it remarkably satisfactory.

"We put it to work on 3½" dia. Nickel Chromium Steel and it made TEN times as many cuts as the saws we had been previously using before giving out as far as this class of steel was concerned.

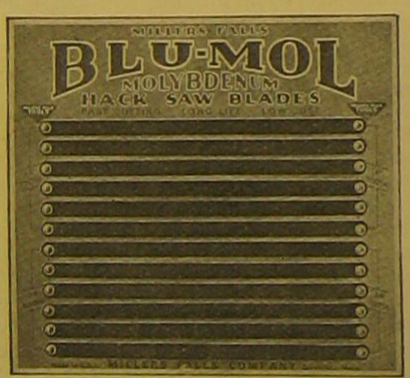
"It was then put to work on common mild steel which it cut quite satisfactorily, making almost as many cuts before finally giving out as we have been getting from a new saw of another make."

HAND BLADES

Length Ins.	Width Ins.	Thick Ins.	Order by Nos. Below Teeth Per Inch 14	18	24	32	Price Per Gross
9	½	·025		918M	924M	932M	£5 12 6
10	½	·025		1018M	1024M	1032M	6 5 0
10	½	·032		1058M			8 8 9
12	½	·025	1214M	1218M	1224M	1232M	7 10 0
12	½	·032		1258M			10 2 6

POWER MACHINE BLADES

Length Ins.	Width Ins.	Thick Ins.	Order by Nos. Below Teeth Per Inch 4	6	10	14	Price Per Dozen
12	¾	·032				1234M	£1 0 3
12	¾	·049			2340M	2344M	1 5 6
12	1	·049		1206M	1210M	2414M	1 14 0
12	1	·065		2406M	2410M		2 2 0
14	¾	·049				4344M	1 9 9
14	1	·049		1406M	1410M	4414M	1 19 8
14	1	·065		4406M	4410M		2 9 0
14	1¼	·065	4504M	4506M	4510M		3 1 3
16	1¼	·065	(8 teeth)				3 10 0
17	1	·049		1706M	1710M	7414M	2 8 2
17	1	·065		7406M	7410M		2 19 6
17	1¼	·065	7504M	7506M	7510M		3 14 5
18	1	·065			8410M		3 3 0
18	1¼	·065	8504M	8506M	8510M		3 18 9
18	1½	·072	8604M	8606M			5 3 6
21	1½	·065	1604M	1606M	1610M		5 10 3
21	2	·072	1804M	1806M			8 1 0
24	1½	·065		4606M	4610M		6 6 0
24	2	·072	4804M	4806M			9 4 0



Display, No. 2000 M

Contains twelve Blades each 10 ins. long. (6 blades with 18 teeth and 6 blades with 24 teeth.)

The Card is attractively designed and printed in gold, red and blue, fitted with a double easel and making a very substantial display.

Price, complete Display ... 10/5

BLU-MOL
MOLYBDENUM HACK SAW BLADES
THEY DO MORE!

HACK SAW BLADES

"Milford" Hack Saw Blades (Made in U.S.A.)

Hand Frame Blades All Hard

Duplex Blades

"Milford" All Hard and "Milford Flexible" have fine teeth on the forward end of the blade, enabling a cut to be quickly and accurately started on sharp corners, etc. **Prices as regular Hand Blades.**

Length Inches	Width Inch	Thickness Inch	Teeth per Inch: Reg.	Med.	Fine	Tubing	Price Per Gross	Length Inches	Width Inch	Thickness Inch	Teeth per Inch: Reg.	Med.	Fine	Tubing	Price Per Gross
8	7/16	·025	—	18	24	32	£1 13 4	12	1/2	·025	14	18	24	32	£2 10 0
9	1/2	·025	—	18	24	32	1 17 6	12	9/16	·025	14	18	24	32	2 16 3
10	1/2	·025	14	18	24	32	2 1 8								

14 and 18 teeth can be furnished in either "Regular" or "Wavy Set"; 24 and 32 teeth are furnished only in "Wavy Set."

Power Blades ("Regular" or "Wavy Set")

Length Inches	Width Inch	Thickness Inch	Teeth per Inch	Price Per Gross	Length Inches	Width Inch	Thickness Inch	Teeth per Inch	Price Per Gross
10	3/4	·049	10	£4 5 0	16	1	·049	10–14	£9 1 4
12	9/16	·028	14–18–24	£2 18 6		1	·065	10	11 4 0
	5/8	·028	14–18–24	3 5 0		1 1/4	·049	6–10	11 6 8
	5/8	·032	14–18–24	3 7 6	17	1	·049	10–14	£9 12 8
	3/4	·032	14–18	4 1 0		1	·065	10	11 18 0
	3/4	·049	10–14	5 2 0		1 1/4	·065	4–6–10	14 17 6
	1	·049	10–14	6 16 0	18	1	·049	10	£10 4 0
14	9/16	·028	14–18–24	£3 8 3		1	·065	10	12 12 0
	3/4	·032	14	4 14 6		1 1/4	·065	6–10	15 15 0
	3/4	·049	10–14	5 19 0		1 1/2	·065	10	18 18 0
	1	·049	10–14	7 18 8	20	1	·065	10	£14 0 0
	1	·065	10	9 16 0	21	1 1/2	·065	4–6–10	22 1 0
	1 1/4	·049	6–10	9 18 4	24	1 1/2	·065	6–10	25 4 0
	1 1/4	·065	4–6–10	12 5 0					

When ordering, state length, width, and thickness required; also number of Teeth wanted. Regular Teeth will be supplied unless otherwise specified.

"Milford" High-Speed Steel Hack Saw Blades

These Blades have been produced for use in Hand Frames and Heavy Power Hack Sawing Machines.
Used under identical working conditions, "Milford" High Speed Steel Blades will average five or more times as many cuts as ordinary Blades. They are tempered to resist side way on the teeth and can be operated at cutting speeds which with ordinary blades would be unsafe. One pitch of tooth will also cut a greater range of metals. *Note*:—Power Blades 1 inches and over are ⅛ in. less between centres of holes than lengths given, with exception of 21 and 24-in. sizes which are listed exact length between centres of holes.

HAND FRAME BLADES

Length Inches	Width Inch	Thickness Inch	Teeth per Inch	Price Per Gross	Length Inches	Width Inch	Thickness Inch	Teeth per Inch	Price Per Gross
10	9/16	·025	18–24–32	£8 8 0	12	9/16	·025	18–24–32	£10 4 0

FOR HEAVY POWER HACK SAW MACHINE BLADES

12	1	·049	14	£36 0 0	17	1	·065	6–10	£51 0 0
12	1	·065	6–10	36 0 0	17	1 1/4	·065	4–6	63 15 0
14	1	·049	14	42 0 0	18	1	·065	10	54 0 0
14	1	·065	6–10	42 0 0	18	1 1/4	·065	4–6	67 10 0
14	1 1/4	·065	4–6	52 10 0	21	1 1/2	·065	4–6–10	94 10 0
17	1	·049	14	51 0 0	24	1 1/2	·065	6–10	108 0 0

"Eureka"

Tempered flexible blades regularly furnished. 18 and 22 teeth per inch.

Length, ins. ...	8	9	10	12
Price, per Gross ...	33/4	37/6	41/8	50/–

"TT" Blades

These blades have flexible backs and hardened teeth, are ·025 inch thick, 32 teeth per inch, and are recommended for cutting thin metal tubes and sheets.

Length, ins. ...	8	9	10
Width, in. ...	7/16	7/16	1/2
Price, per Gross	£1 13 4	£1 17 6	£2 1 8

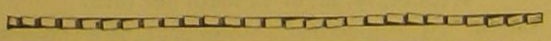
Jewellers' Saw Blades

Teeth have a good "Set":—6 ins. long, ¼ in. wide, ·014 gauge, 32 teeth per inch. They fit the Nos. 3 and 5 "Milford Flexible Midget" Frames.

Price, per Gross, 6 inch 37/6

"Milford Flexible"

With flexible backs and hardened teeth these blades are practically unbreakable. They are made from tungsten steel for use in hand frames and are recommended for difficult sawing. **"Milford Flexible" Blades with 24 and 32 teeth have "Wavy Set."**



Length Inches	Width Inch	Thickness Inch	Teeth per Inch: Reg.	Med.	Fine	Tubing	Price Per Gross
8	7/16	·025	—	18	24	32	£1 13 4
9	1/2	·025	—	18	24	32	1 17 6
10	1/2	·025	14	18	24	32	2 1 8
12	1/2	·025	14	18	24	32	2 10 0
12	9/16	·025	14	18	24	32	2 16 3

"XL" Saw Blades

For use in Power Sawing Machines. **Tooth edge only hardened,** back remaining flexible. **Made ⅝ inch wide, ·031 gauge, with 14 or 24 teeth per inch.**

Length, ins.	8	9	10	12	14
Price, per Gross	£2 5 0	£2 9 7	£2 16 3	£3 7 6	£3 18 9

HACK SAW BLADES

"Eclipse" Hack Saw Blades

British Made of Special Alloy Steel

"Eclipse" Hand Blades
(Two Types.)
All Hard or Flexible Back.
With 14, 18, 22, and 32 teeth per inch.

Size Inches	Thickness Inches	Gauge No.	Price Per Gross
8 × 7/16	·024 or	23	£1 13 4
8 × 1/2	·024 ,,	23	1 13 4
9 × 1/2	·024 ,,	23	1 17 6
10 × 1/2	·024 ,,	23	2 1 8
11 × 1/2	·024 ,,	23	2 5 10
12 × 1/2	·024 ,,	23	2 10 0
12 × 9/16	·024 ,,	23	2 16 3

"Eclipse" Light Power Blades
(Two Types.)
All Hard or Flexible Back.
With 14, 18, 22, or 32 teeth per inch.

Size Inches	Thickness Inches	Gauge No.	Price Per Gross
12 × 9/16	·028 or	22	£2 18 6
12 × 5/8	·028 ,,	22	3 5 0
12 × 5/8	·032 ,,	21	3 7 6
12 × 3/4	·032 ,,	21	4 1 0
14 × 9/16	·028 ,,	22	3 8 3
14 × 3/4	·032 ,,	21	4 14 6
16 × 3/4	·032 ,,	21	5 8 0

"Eclipse" Heavy Power Blades
With 6, 10, or 14 teeth per inch.
Sizes 17 inches and longer are supplied with 4 teeth per inch.

Size Inches	Thickness Inches	Gauge No.	Price Per Gross	Size Inches	Thickness Inches	Gauge No.	Price Per Gross
10 × 3/4	·048 or	18	£4 5 0	19 × 1	·064 or	16	£13 6 0
12 × 3/4	·048 ,,	18	5 2 0	19 × 1 1/2	·056 ,,	17	18 1 0
12 × 1	·048 ,,	18	6 16 0	20 × 1	·064 ,,	16	14 0 0
12 × 1	·056 ,,	17	7 12 0	20 × 1 1/4	·056 ,,	17	15 16 8
13 × 1	·048 ,,	18	7 7 4	20 × 1 1/4	·080 ,,	14	22 10 0
14 × 3/4	·048 ,,	18	5 19 0	20 × 1 1/2	·056 ,,	17	19 0 0
14 × 1	·048 ,,	18	7 18 8	20 × 1 1/2	·080 ,,	14	27 0 0
14 × 1	·064 ,,	16	9 16 0	21 × 1	·064 ,,	16	14 14 0
14 × 1 1/4	·048 ,,	18	9 18 4	21 × 1 1/2	·064 ,,	16	22 1 0
14 × 1 1/4	·064 ,,	16	12 5 0	22 × 1 1/2	·056 ,,	17	20 18 0
16 × 1	·048 ,,	18	9 1 4	24 × 1	·064 ,,	16	16 16 0
16 × 1	·064 ,,	16	11 4 0	24 × 1 1/2	·064 ,,	16	25 4 0
16 × 1 1/4	·048 ,,	18	11 6 8	24 × 1 1/2	·080 ,,	14	32 8 0
16 × 1 1/4	·056 ,,	17	12 13 4	24 × 2	·092 ,,	13	52 16 0
17 × 1	·048 ,,	18	9 12 8	26 × 1 1/2	·064 ,,	16	27 6 0
17 × 1	·064 ,,	16	11 18 0	26 × 2	·092 ,,	13	57 4 0
17 × 1 1/4	·064 ,,	16	14 17 6	28 × 1 1/2	·064 ,,	16	29 8 0
18 × 1	·048 ,,	18	10 4 0	28 × 2	·092 ,,	13	61 12 0
18 × 1	·064 ,,	16	12 12 0	30 × 1 1/2	·064 ,,	16	31 10 0
18 × 1 1/4	·064 ,,	16	15 15 0	32 × 1 1/2	·064 ,,	16	33 12 0
18 × 1 1/4	·080 ,,	14	20 5 0				
18 × 1 1/2	·056 ,,	17	17 2 0				
18 × 1 1/2	·064 ,,	16	18 18 0				

"Eclipse" High-Speed Steel Hack Saw Blades

Hand and Light Power Blades
With 14, 18, 22, or 32 teeth per inch.

Size, Ins.	Thickness, Ins.	Gauge No.	Price Per Gross
8 × 1/2	·024 or	23	£6 13 4
9 × 1/2	·024 ,,	23	7 10 0
10 × 1/2	·024 ,,	23	8 6 8
12 × 9/16	·024 ,,	23	11 5 0
12 × 5/8	·032 ,,	21	13 10 0
12 × 3/4	·032 ,,	21	16 4 0

Heavy Power Blades
With 4, 6, 10, or 14 teeth per inch.

Size, Ins.	Thickness, Ins.	Gauge No.	Price Per Gross
12 × 3/4	·048 or	18	£20 8 0
12 × 1	·048 ,,	18	27 4 0
14 × 3/4	·048 ,,	18	23 16 0
14 × 1	·048 ,,	18	31 14 8
14 × 1	·064 ,,	16	39 4 0
16 × 1	·048 ,,	18	36 5 4
16 × 1	·064 ,,	16	44 16 0

H.S.S. Heavy Power Blades can be supplied in sizes larger than listed. Prices on application.

"Eclipse" Double Edged Hack Saw Blades

Width 1 inch: Thickness ·032 in. or 21 gauge, 22 teeth per inch. These blades are made with a "wavy set."

Length	9	10	12	14	ins.
Prices	£4 1 0	£4 10 0	£5 8 0	£6 6 0	per gross

HACK SAW BLADES

COMET
Hack Saw Blades (British Made)

"Comet" Hack Saw Blades are made of tungsten steel and are supplied in either **All Hard or Spring Back.**
Spring Back type recommended for hand use and All Hard and High-Speed Blades for machine use, as they are not subjected to the twistings of hand blades.

HAND FRAME BLADES, TYPE A

Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch: Mild Steel etc.	Gen.	Tool Steel	Brass	Tubing	Thin Tubing	Price Per Gross	Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch: Mild Steel etc.	Gen.	Tool Steel	Brass	Tubing	Thin Tubing	Price Per Gross
8	7/16	23	14	16	18	22	28	32	£1 13 4	11	½	23	14	16	18	22	28	32	£2 5 10
8	½	23							1 13 4	12	½	23							2 10 0
9	½	23							1 17 6	12	9/16	23					-		2 16 3
10	½	23							2 1 8										

LIGHT POWER BLADES, TYPE B—ALL HARD

12	9/16	22	14	16	18	22	28	33	£2 18 6	14	9/16	22	14	16	18	22	28	32	£3 8 3
12	⅝	22							3 5 0	14	¾	21							4 14 6
12	⅝	21	14	16	18	22	—	—	3 7 6	16	¾	21	14	16	18	22	—	—	5 8 0
12	¾	21							4 1 0										

HEAVY POWER BLADES, TYPE C—ALL HARD

Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch	Price Per Gross	Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch	Price Per Gross
10	¾	18	— — 8–10–12–14	£4 5 0	18	1½	16	4– 6– 8–10	£18 18 0
12	¾	18	— — — 10–12–14	5 2 0	19	1	16	— 6– 8–10	13 6 0
	1	18	— — 8–10–12–14	6 16 0		1½	17	— 6– 8–10	18 1 0
	1	17	— — 8–10 — —	7 12 0	20	1	16	— 6– 8–10	14 0 0
13	1	18	— — 8–10–12–14	7 7 4		1¼	17	— 6– 8–10	15 16 8
14	¾	18	— — 8–10–12–14	5 19 0		1¼	14	4– 6– 8 —	22 10 0
	1	18	— — 8–10–12–14	7 18 8		1½	17	— 6– 8–10	19 0 0
	1	16	— 6– 8–10 — —	9 16 0		1½	14	4– 6– 8 —	27 0 0
	1¼	18	— 6– 8–10 — —	9 18 4	21	1	16	— 6– 8–10	14 14 0
	1¼	16	4– 6– 8–10 — —	12 5 0		1½	16	4– 6– 8–10	22 1 0
16	1	18	— — 8–10–12–14	9 1 4	22	1½	17	— 6– 8–10	20 18 0
	1	16	— 6– 8–10 — —	11 4 0	24	1	16	— 6– 8–10	16 16 0
	1¼	18	— 6– 8–10 — —	11 6 8		1½	16	4– 6–8–10	25 4 0
	1¼	17	— 6– 8–10 — —	12 13 4		1½	14	4– 6– 8 —	32 8 0
17	1	18	— — 8–10–12–14	9 12 8		2	13	4– 6 — —	52 16 0
	1	16	— 6– 8–10 — —	11 18 0	26	1½	16	4– 6– 8–10	27 6 0
	1¼	16	4– 6– 8–10 — —	14 17 6		2	13	4– 6 — —	57 4 0
18	1	18	— — 8–10–12–14	10 4 0	28	1½	16	4– 6– 8–10	29 8 0
	1	16	— 6– 8–10 — —	12 12 0		2	13	4– 6 — —	61 12 0
	1¼	16	4– 6– 8–10 — —	15 15 0	30	1½	16	4– 6– 8–10	31 10 0
	1¼	14	4– 6– 8 — — —	20 5 0	32	1½	16	4– 6– 8–10	33 12 0
	1½	17	— 6– 8–10 — —	17 2 0					

COMET
Double Edge Hack Saw Blades, Type D

These Blades have slotted ends and are Wavy Set. They are intended for plumbers' and electricians' general work.

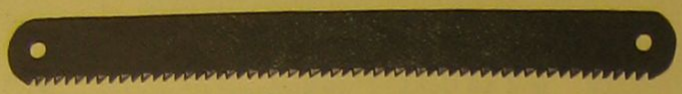
Length	9	10	12	14 ins.
Width	1	1	1	1 in.
Thickness gauge	21	21	21	21
Teeth per inch	22	22	22	22
Price	£4 1 0	£4 10 0	£5 8 0	£6 6 0 per gross

Note.—Hack Saw Blades—the nominal inch lengths, unless made to specification, are the measurements between outside edges of holes.

Special sizes other than those listed can be quoted for and made to order, subject to normal manufacturing delay. When making saws in dimensions other than those listed, the right is reserved to supply all that are made within 20 per cent more or less of the quantity specified.

COMET

High-Speed Steel Hack Saw Blades (British Made)



Very rapid cutting and with enormous output. Blades are sand-blast finish. The heavy power blades are for heavy and big sections and are easily re-sharpened by any small grinder.

HAND BLADES, TYPE A 1

Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch	Price Per Gross	Length Ins.	Width Ins.	Thickness Gauge	Teeth per Inch	Price Per Gross
8	½	23	14–16–18–22–32	£6 13 4	10	½	23	14–16–18–22–32	£8 6 8
9	½	23	14–16–18–22–32	7 10 0	12	9/16	23	14–16–18–22–32	11 5 0

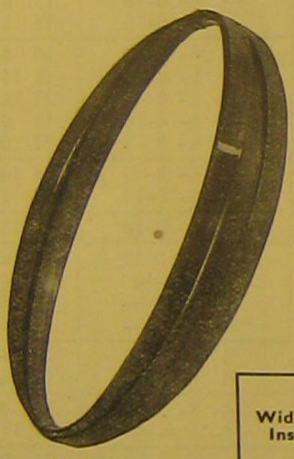
LIGHT POWER BLADES, TYPE B 1

12	⅝	21	14–16–18–22 —	£13 10 0	12	¾	21	14–16–18–22 —	£16 4 0

HEAVY POWER BLADES, TYPE C 1

12	¾	18	— — — 10–14	£20 8 0	17	1	16	— 6– 8–10 —	£47 12 0
	1	18	— — 8–10–14	27 4 0					
	¾	18	— — 8–10–14	23 16 0	18	1¼	16	4– 6– 8–10 —	63 0 0
14	1	18	— — 8–10–14	31 14 8		1½	16	4– 6– 8–10 —	75 12 0
	1	16	— 6– 8–10 —	39 4 0		1¾	14	4– 6– 8 — —	81 0 0
	1¼	16	4– 6– 8–10 —	49 0 0	20	1¼	14	4– 6– 8 — —	90 0 0
16	1	18	— — 8–10–14	36 5 4	21	1½	16	4– 6– 8–10 —	88 4 0
	1	16	— 6– 8–10 —	44 16 0	24	1½	16	4– 6– 8–10 —	100 16 0
17	1	18	— — 8–10–14	38 10 8		1½	14	4– 6– 8 — —	129 12 0

Thompson's Flexible Back Metal Cutting Band Saw Blades (Made in U.S.A.)



"Wavy" Set can be furnished in any cut of teeth, if so ordered.

Note—Welded Saws, measuring 6 inches or more over the even foot, will be charged for the entire foot; less than 6 inches over the even foot will not be charged for.

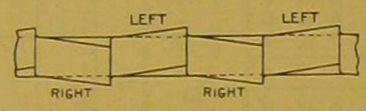


Fig. 1.—"MB" SET

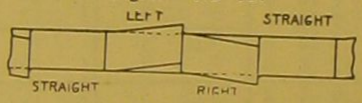


Fig. 2.—"XX" SET

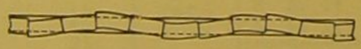


Fig. 3.—"WAVY" SET

"Sets" for Thompson Band Saws.

Fig. 1. "MB" Set is generally used for cutting composition metals.

Fig. 2. "XX" Set is a popular "Set" and usually supplied on ½, ⅝, ¾, and 1 in. widths.

Fig. 3. "Wavy" Set is particularly efficient on gauges ·014 in. and ·025 in. with 24 or 32 teeth per inch.

Thompson Band Saws can be supplied in various tempers and lengths, and it will materially assist when ordering if all the following particulars are given:—Width, gauge, teeth per inch, temper, and nature of material to be cut.

Width Ins.	Thickness In.	Gauge	Teeth per Inch	"Sets"	Price in Coil or Cut to Length per foot	Price for Welding each
¼	·014	28	— — — — — — 32	"Wavy"	1/-	2/1
3/16	·025	23	— — — 14–18–22–32	"MB"	7d.	1/8
¼	·025	23	— — — 14–18–22–32	"MB"	7d.	1/8
⅜	025	23	— 10–12–14–18–22–32	"MB"	7d.	1/8
½	·025	23	— 10–12–14–18–22–32	"MB" or "XX"	7d.	1/8
⅝	·031	21	8–10–12–14–18–22–32	"MB" or "XX"	8d.	2/1
¾	·031	21	8–10–12–14–18–22 —	"MB" or "XX"	9d.	2/6
1	·036	20	8–10–12–14–18–22 —	"MB" or "XX"	11d.	2/6

Thompson's "Eureka" Coil Saws (Made in U.S.A.)

For Thompson's Jig Saw Machine

Sizes 3/16 ¼ ⅜ in. by ·025 in. thick.

Prices 17/6 17/6 17/6 per coil of 50 feet.

For Thompson's "Eureka" Metal Power Saw Machine, No. 1

Coils for use in the magazine attachment of the Machines.

⅝ inch × ·031 inch thick × 25 feet long, **10/- per coil.**

HACK SAW BLADES

"Star" Hack Saw Blades (Made in U.S.A.)

"Star" Hack Saw Blades combine strength, efficiency, and uniform cutting qualities. The teeth are set to maintain proper clearance and continue to do good work throughout the life of the blade.
They are made with 14 teeth to the inch for cutting large stock, 18 teeth (which are most widely used) for general work, 24 teeth for pipe, plates, etc., and 32 teeth for extra fine stock, thin pipe, sheet metal, etc.

All Hard Hand Blades

With 14, 18, 24, or 32 teeth per inch.

Length	**8**	**9**	**10**	**12**	**ins.**
Width	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	,,
Thickness (**No. 23** Gauge) or ...	·025	·025	·025	·025	,,
Prices	**33/4**	**37/6**	**41/8**	**50/- per gross**	

Light Power Machine Blades

With 14 or 18 teeth per inch.

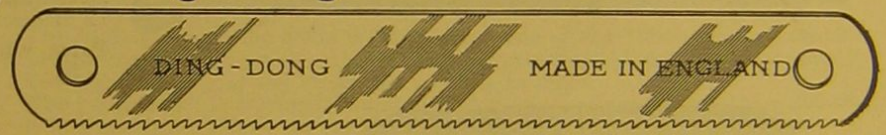
For Heavy Hand Frame and Light Power Machine Work.

Length	**12**	**12**	**14**	**ins.**
Width	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	,,
Thickness (**No. 21** gauge) or ...	·032	·032	·032	,,
Prices	**67/6**	**81/-**	**94/6 per gross**	

Heavy Power Machine and other "Star" Hack Saw Blades can be supplied. Full particulars on request.

British Made

"Ding-Dong" Hack Saw Blades



These blades are all hard throughout and practically unbreakable. They can be bent as illustrated, and yet will spring back straight without in any way impairing their excellent cutting qualities.

Hand Blades

(Two Types.)

All Hard or Flexible Back. Regular with 16, 24, and 32 teeth per inch. Also made with 12, 14, 18, 22, and 28 teeth per inch.

Size Inches	Thickness Inches	Gauge No.	Price Per Gross
8× $\frac{7}{16}$	·024	or 23	£1 13 4
8× $\frac{1}{2}$	·024	,, 23	1 13 4
9× $\frac{1}{2}$	·024	,, 23	1 17 6
10× $\frac{1}{2}$	·024	,, 23	2 1 8
11× $\frac{1}{2}$	·024	,, 23	2 5 10
12× $\frac{1}{2}$	·024	,, 23	2 10 0
12× $\frac{9}{16}$	·024	,, 23	2 16 3

Light Power Blades

(Two Types.)

All Hard or Flexible Back. Regular with 14 or 18 teeth per inch. Also made with 16, 22, 24, or 32 teeth per inch.

12× $\frac{9}{16}$	·028	or 22	£2 18 6
12× $\frac{5}{8}$	·028	,, 22	3 5 0
12× $\frac{5}{8}$	·032	,, 21	3 7 6
12× $\frac{3}{4}$	·032	,, 21	4 1 0
14× $\frac{9}{16}$	·028	,, 22	3 8 3
14× $\frac{3}{4}$	·032	,, 21	4 14 6
16× $\frac{3}{4}$	·032	,, 21	5 8 0

Heavy Power Blades

Regular with 6, 10, or 14 teeth per inch. Also made with 4, 8, or 12 teeth per inch.

Size Inches	Thickness Inches	Gauge No.	Price Per Gross	Size Inches	Thickness Inches	Gauge No.	Price Per Gross
10× $\frac{3}{4}$	·048	or 18	£4 5 0	19×1	·064	or 16	£13 6 0
12× $\frac{3}{4}$	·048	,, 18	5 2 0	19×1$\frac{1}{2}$	·056	,, 17	18 1 0
12×1	·048	,, 18	6 16 0	20×1	·064	,, 16	14 0 0
12×1	·056	,, 17	7 12 0	20×1$\frac{1}{4}$	·056	,, 17	15 16 8
13×1	·048	,, 18	7 7 4	20×1$\frac{1}{4}$	·080	,, 14	22 10 0
14× $\frac{3}{4}$	·048	,, 18	5 19 0	20×1$\frac{1}{2}$	·056	,, 17	19 0 0
14×1	·048	,, 18	7 18 8	20×1$\frac{1}{2}$	·080	,, 14	27 0 0
14×1	·064	,, 16	9 16 0	21×1	·064	,, 16	14 14 0
14×1$\frac{1}{4}$	·048	,, 18	9 18 4	21×1$\frac{1}{2}$	·064	,, 16	22 1 0
14×1$\frac{1}{4}$	·064	,, 16	12 5 0	22×1$\frac{1}{2}$	·056	,, 17	20 18 0
16×1	·048	,, 18	9 1 4	24×1	·064	,, 16	16 16 0
16×1	·064	,, 16	11 4 0	24×1$\frac{1}{2}$	·064	,, 16	25 4 0
16×1$\frac{1}{4}$	·048	,, 18	11 6 8	24×1$\frac{1}{2}$	·080	,, 14	32 8 0
16×1$\frac{1}{4}$	·056	,, 17	12 13 4	24×2	·092	,, 13	52 16 0
17×1	·048	,, 18	9 12 8	26×1$\frac{1}{2}$	·064	,, 16	27 6 0
17×1	·064	,, 16	11 18 0	26×2	·092	,, 13	57 4 0
17×1$\frac{1}{4}$	·064	,, 16	14 17 6	28×1$\frac{1}{2}$	·064	,, 16	29 8 0
18×1	·048	,, 18	10 4 0	28×2	·092	,, 13	61 12 0
18×1	·064	,, 16	12 12 0	30×1$\frac{1}{2}$	·064	,, 16	31 10 0
18×1$\frac{1}{4}$	·064	,, 16	15 15 0	32×1$\frac{1}{2}$	·064	,, 16	33 12 0
18×1$\frac{1}{4}$	·080	,, 14	20 5 0				
18×1$\frac{1}{2}$	·056	,, 17	17 2 0				
18×1$\frac{1}{2}$	·064	,, 16	18 18 0				

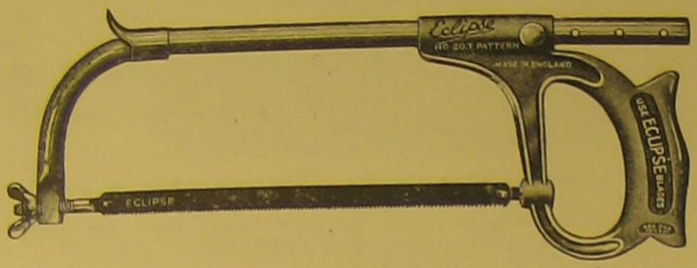
Double Edge Hack Saw Blades—

Width, 1 inch; Thickness, ·032 in. or 21 gauge; 24 teeth per inch.

Length	9	10	12	14	inches.
Price	£4 1 0	£4 10 0	£5 8 0	£6 6 0	per gross

HACK SAW FRAMES

"Eclipse" Adjustable Hack Saw Frames (British Made)



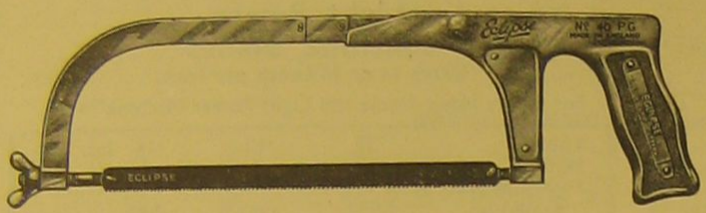
No. 20 T

Accurate control of the blade is ensured by the design and location of the comfortable, totally enclosed handle and unique thumb rest.

The frame is of tubular design, with a simplified device for swivelling the blade.

Chromium-plated finish. Adjustable 8 to 12 inches.

Price, with one 8-inch blade ... ... 7/6 each



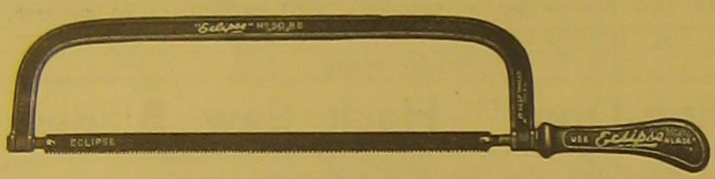
No. 40 PG

Provides comfortable grip in the natural position.

Graduations indicate the adjustment of the bow, which is accommodated in the handle.

Nickel-plated finish. Adjustable 8 to 12 inches.

Price, with one 8-inch blade ... ... 5/– each



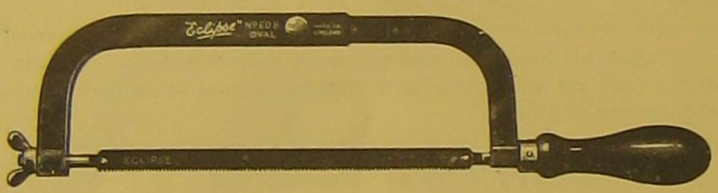
No. 50 RS

A rolled-steel pattern. This is a non-collapsible frame of girder section spring steel, combining lightness with strength.

Adjustment is provided in a hollow handle of original design, and there are no loose parts.

Heat-treated, rust-resisting finish. Adjustable 9 to 12 inches.

Price, with one 9-inch blade ... ... 3/9 each

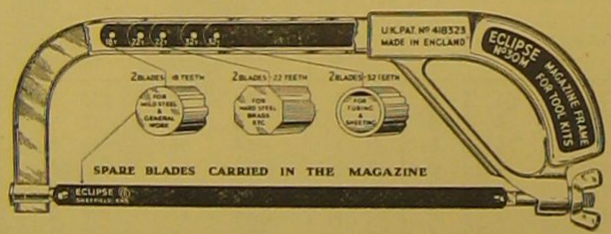


No. 60 B

Oval telescopic pattern. A sturdy and attractive design, providing telescopic adjustment with graduated scale. Comfortable polished hardwood handle.

Heat-treated, rust-resisting finish. Adjustable 8 to 12 inches.

Price, with one 8-inch blade ... ... 2/6 each


U.K. PAT. No. 418323
MADE IN ENGLAND
ECLIPSE No. 30M MAGAZINE FRAME FOR TOOL KITS
2 BLADES 18 TEETH
2 BLADES 22 TEETH
2 BLADES 32 TEETH
SPARE BLADES CARRIED IN THE MAGAZINE
ECLIPSE

No. 30 M

Special features in the design of this magazine frame include:—

Five spare Eclipse Flex Blades in assorted pitches are carried in the bow, which forms the magazine.

Teeth cannot be damaged.

Tubular frame of exceptional strength combined with lightness.

Position and Shape of handle, which is unbreakable, gives comfortable control to the operator.

Price, complete with six 10-inch Eclipse Flex Blades ... ... 5/– each
,, ,, ,, six 12-inch ,, ,, ,, ... 5/6 ,,

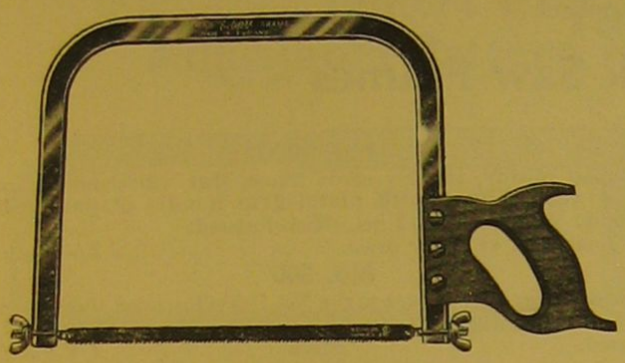
"Eclipse" Solid Hack Saw Frames Nos. 870, 970, 1070 and 1270

These are extremely rigid frames, combined with lightness and balance.

Polished hardwood handle affords comfortable grip. The Frame has blued rust resisting finish.

No. 870	... ...	8 inch blade	**Price with one blade 2/–**
No. 970	... ...	9 ,, ,, ...	,, ,, ,, **2/2**
No. 1070	... ...	10 ,, ,, ...	,, ,, ,, **2/4**
No. 1270	... ...	12 ,, ,, ...	,, ,, ,, **2/6**

HACK SAW FRAMES



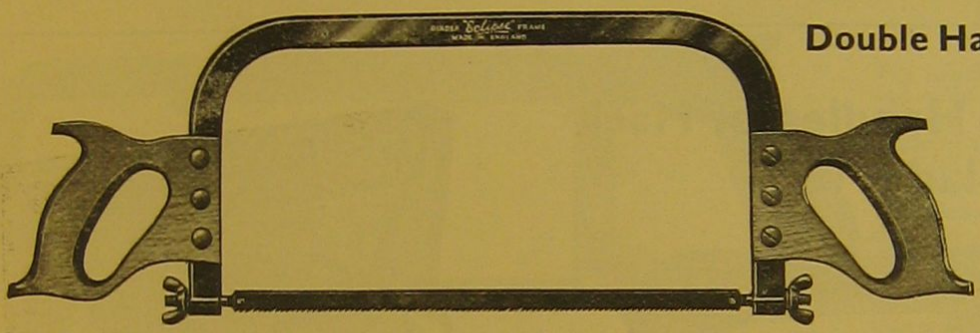
"Eclipse" Girder Frames (British Made)
No. 90G 91G 92G

These frames have an oval tubular bow in place of the usual solid section, giving combination of strength, rigidity and lightness.

Tension pieces fit closely into sockets which are formed integrally with the bow, eliminating rivets or welding.

Hardwood handle affords comfortable grip when sawing rails or girders in position. Blued rust resisting finish.

No.	90G	91G	92G
Length of blade, in.	12	12	14
Depth of frame, in.	7¼	10¼	7¼
Price, each	**8/6**	**8/6**	**9/6**

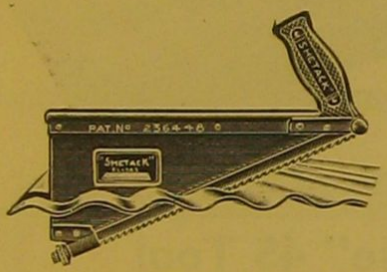


Double Handle Type No. 93G
(British Made)

For use by two operators. Of similar construction and finish to the single handle frame described above.

No.	93G
Length of blade, ins....	14
Depth of frame, ins. ...	7¼
Price, each	**12/6**

"Shetack" Hack Saw Frame (British Made)
Cuts any width or length



The angle at which the blade is set in the frame of the "Shetack" Saw enables straight cuts through corrugated iron and other sheet metals, also ebonite, vulcanite, sheet asbestos, etc., of any length and width to be made.

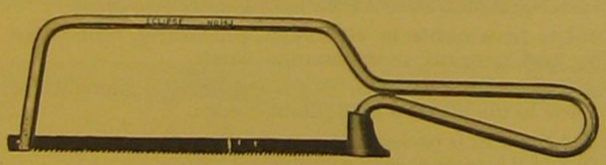
The "Shetack" is strongly constructed of steel, with a cast-steel blade which is thin enough to follow the cut of an ordinary 12-inch hack saw blade, and it is simple to operate.

Unbreakable handle—Tubular Back, adds to rigidness.
Rust proof blued blades. Finger adjusting screw to cutting angle.
For cutting various materials the following blades are recommended:—

For Very Thin Sheet Metals	,,	,, ,, 32	,, ,,
For Ebonite and similar materials	,,	,, ,, 14	,, ,,
For Asbestos Sheets and Tiles	,,	,, ,, 7	,, ,,

Price, including one 12 in. blade, 22 teeth **5/9 each**
Extra blades ... ... **52/6 gross**

"Eclipse Junior" Saw No. 14J (British Made)



A handy tool for garage, workshop or home use.
The rubber finger guard is a unique feature which gives protection and facilitates control in sawing. Chromium plated finish.

Depth of frame, 2 ins. Size of blade—6 × ¼ ins.
Price ... **1/- each**

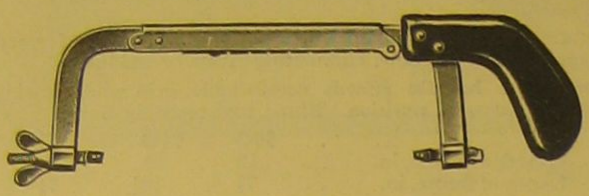
Extra Blades in boxes of 12 packets each containing 4 blades.
Price 6d. per packet.

COMET
Jewellers' Hack Saw Frames (British Made)

For jewellers, toolmakers, electricians, plumbers, and wireless and automobile tool kits.
The frame is made from ¼ inch round steel, 1⅝ ins. deep at handle, finished in green enamel. **The thin blade removes very little stock** and will cut wire cable, screws, ebonite, and pipe, etc., within its capacity.
One 6 × ¼ in. blade supplied with each frame.

Price, complete with blade ... **12/- dozen**
Extra blades ... ... **18/- gross**

COMET
Adjustable Hack Saw Frames (Foreign)



No. 1000

A good quality, sturdily made frame, that will stand up to hard wear. **Fitted with pistol-grip handle of polished wood.** Adjustable 8-12 ins. Nickel-plated.
A good tool, at a low price. ... ... **2/- each**

No. 500

Has a similar heavy frame to the No. 1000 illustrated above, but is fitted with a straight, black, polished wood handle. Nickel-plated. **Price** ... ... **1/6 each**

"Eclipse" Pad Handles for Hack Saw Blades (British Made)

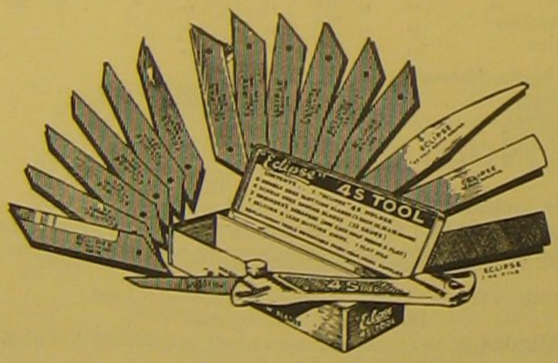
For holding either new or broken hack saw blades this tool is invaluable for many uses in confined and awkward positions, for plumbers, joiners, motor mechanics, etc.

The durable handle has a good and comfortable grip, and the finger operated clamping device securely holds the blade in place.

"Eclipse" Pad Handles are packed in attractive display cartons, for counter or window display, and contain 6 handles.

Price of Display Carton of 6 Pad Handles 7/6 each

Eclipse PAD HANDLE
FOR HACK SAW BLADES
A PRACTICAL SOLUTION TO AN OLD PROBLEM
AN INGENIOUS DEVICE FOR SECURELY HOLDING NEW OR BROKEN BLADES
WILL ALSO TAKE PAD SAW BLADES AND WARDING FILES
INVALUABLE TO ENGINEERS, ELECTRICIANS, CASUAL MECHANICS, JOINERS, PLUMBERS, ETC.
1/3



"Eclipse" 4S Tool
16 Tools in one Holder (British Made)

This handy outfit comprises a well-designed nickel-plated holder in which can be securely clamped any of the series of slotting blades, sawing blades, scrapers, or slitting knives supplied.

The tool is invaluable in electrical, plumbing, tool-room, garage, and general maintenance work.

High-quality crucible tungsten steel is employed in manufacture; this imparts to the blades a keen, durable edge.

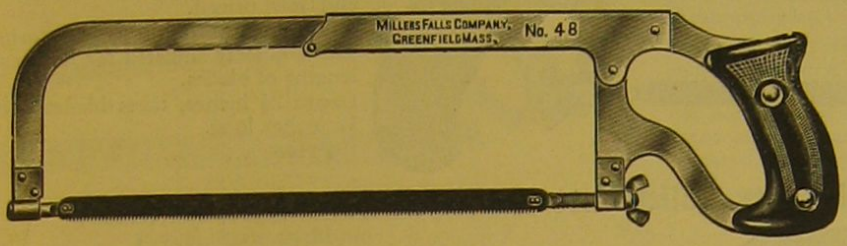
The No. 4 S Outfit is packed in a neat metal-partitioned container —size, $6 \times 1\frac{3}{4} \times 1$ inches—and includes:—

1 Plated Holder with Set Screw.
6 Double-edge Slotting Blades (2 each 23, 21, and 18 gauge—one of the 18 gauge blades is specially ground for mica cutting).
5 Single-edge Sawing Blades, 23 gauge (22 and 32 teeth per inch).
2 Engineers' Scrapers (1 each half-round and flat).
1 Belting and Lead Slitting Knife.
1 Second-cut File.
1 Screw Driver Blade.

Price, Complete Set, 5/-

Replacements:—Slotting Blades and Sawing Blades ... ... **1/9 per doz.**
Scrapers, Slitting Knives, Files, Mica Slotting Blades, and Screw Driver Blades ... ... **6/- ,, ,,**

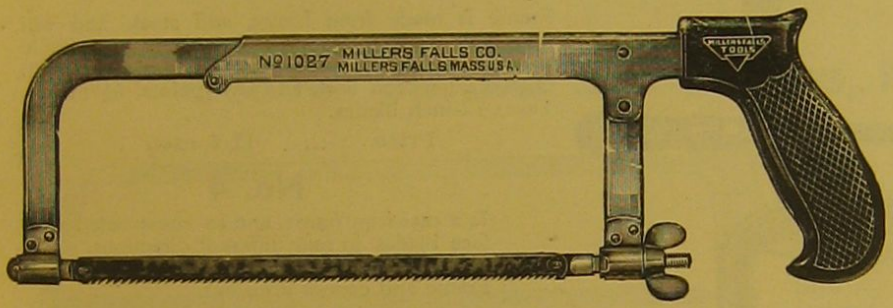
Millers Falls—Goodell Pratt Adjustable Pattern Hack Saw Frames (Made in U.S.A.)



No. 48

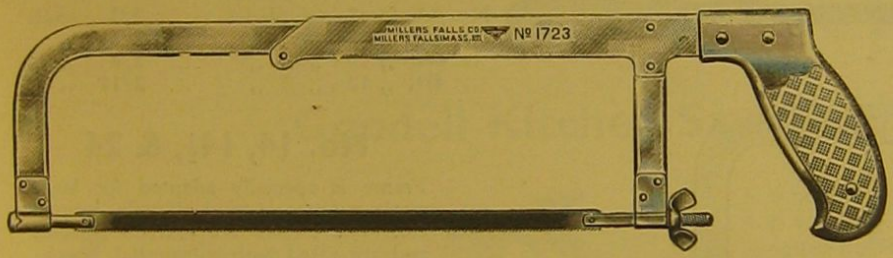
Fully Guarded Pistol Grip Handle

A high-class rigid frame of very substantial build. The handle is of black composition mounted on a heavy steel stamping fully enclosed.
Frame is polished, nickel-plated and highly buffed, 3¼ inches deep, and takes blades 8 to 12 inches long.
Price, with one 10-in. blade, **8/4 each**



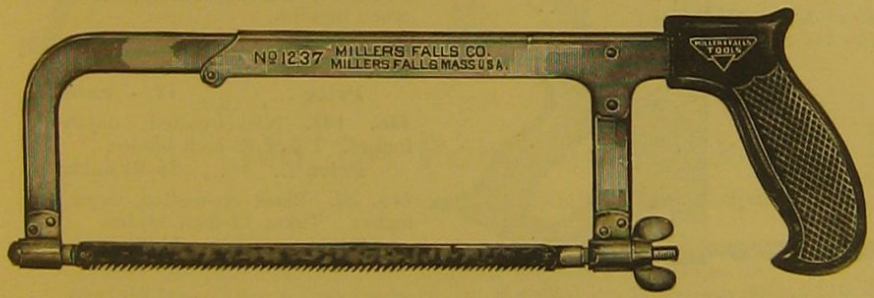
No. 1027

The handle and back are in one piece, and adjustment is made by means of one pin.
Made of special black composition and moulded in one piece, the handle affords a comfortable grip.
The blade is strained by a thumb nut and can be adjusted to cut in four directions.
Frame is polished and nickelled, is 3¼ inches deep, and takes blades 8 to 12 inches long.
Price ... ... **7/- each**



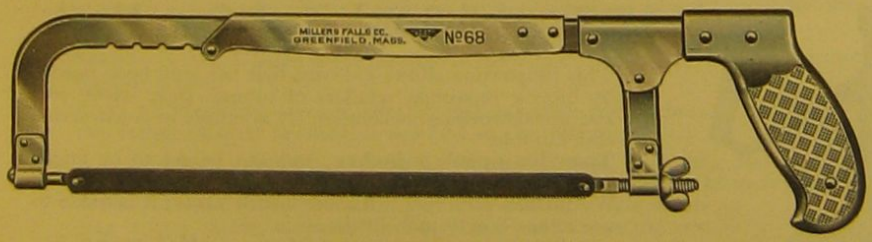
No. 1723

These frames have all-metal handles and specially reinforced backs to ensure against breakage. They are nickel-plated finish with blade faceable in four directions and strained by thumb nut. Adjustable 8 to 12 ins. Depth 3½ ins.
Price ... ... **5/- each**



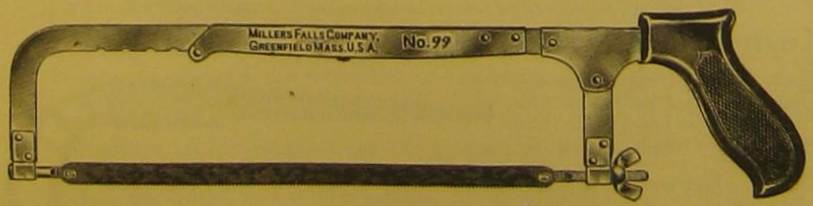
No. 1237

This frame is similar to No. 1723 but has black composition pistol grip handle.
Price ... ... **5/- each**



No. 68

A serviceable tool, indestructible, with comfortable grip checked metal handle. Nickel-plated and buffed, is 2¾ inches deep and takes blades 8 to 12 inches long.
Supplied with 3 blades—two 10 inch, 18 teeth, and one 10 inch, 24 teeth.
Price ... ... **4/6 each**



No. 99

The pistol grip handle is of black composition reinforced its entire length. All metal parts are nickelled and the frame is of solid construction with wing nut tensioning of blade. Blade can be faced four ways. Adjustable 8 to 12 inches. Depth of throat, 2¾ inches
Price ... ... **2/11 each**

HACK SAW FRAMES

Millers Falls—Goodell Pratt Adjustable Hack Saw Frame (Made in U.S.A.)

No. 1275

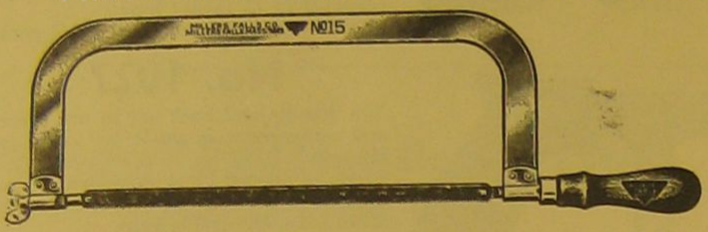
A nickel-plated frame of the pistol grip type, it is exceptional value and low priced.

It is well balanced, has easy grip, and is quickly adjusted for different lengths of blades.

Depth 2½ inches, takes blades 8 to 12 inches long.

Price ... ... 2/11 each

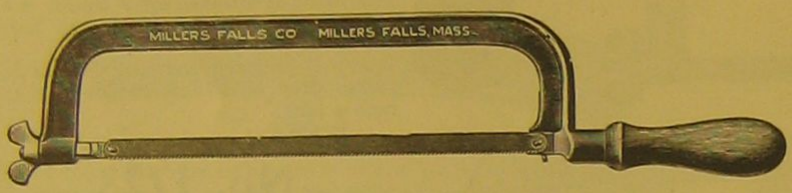
Millers Falls—Goodell Pratt Solid Pattern Hack Saw Frames (Made in U.S.A.)



No. 15

Frame is made from heavy, stiff stock, and will stand any heavy strain. The handle is of suitable size for comfortable grip. Polished and nickel-plated. Distance between back and saw points, 5¼ inches. Takes 12-inch blades.

Price ... 12/6 each

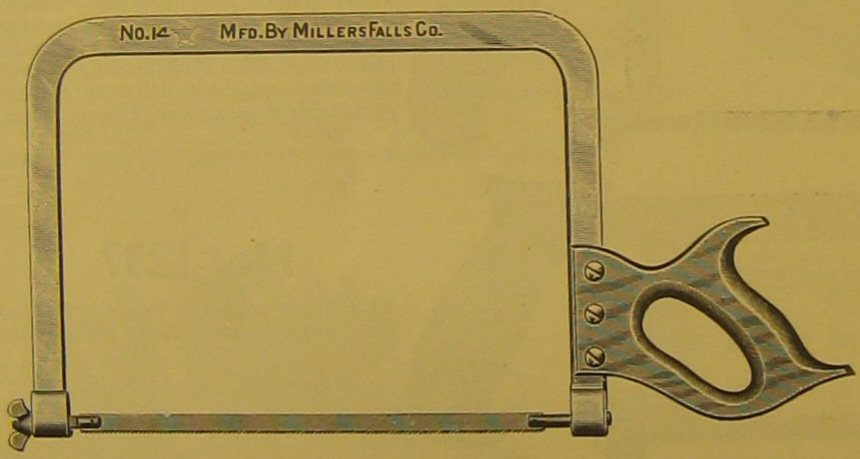


No. 4

Is a cast-iron frame, and so constructed as to face blades in four different directions. The pins which hold the blade are fast in the Frame and cannot drop out.

Prices

No. 4A, for 8-inch blades	...	**2/3**	each
,, **4B**, ,, 9 ,, ,,	...	**2/6**	,,
,, **4C**, ,, 10 ,, ,,	...	**2/6**	,,
,, **4D**, ,, 12 ,, ,,	...	**2/11**	,,



No. 14, 14½, & 24

Frame is specially adapted for large work, such as cutting off rails, beams, etc. The frames are extremely rigid, and are fitted with substantial beech-wood handles.

No. 14. Nickel-plated, depth 10¼ inches. Takes 12-inch blades.

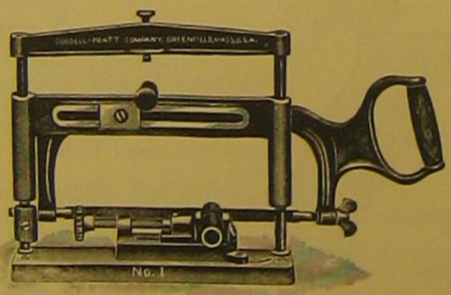
Price ... ... 18/– each

No. 14½. Nickel-plated, depth 7¼ inches. Takes 12-inch blades.

Price ... ... 16/8 each

No. 24. Black enamelled, depth 10¼ inches. Takes 12-inch blades.

Price ... ... 11/9 each



Goodell Bench Hack Saw, No. 1

(Made in U.S.A.)

This illustration shows a device that has long been needed by bicycle repairers, retailers of tubing, large wires, etc., and metal-working mechanics. It is simple in construction and durable.

The vice opens 2 inches, and can be set to an angle, which will be found convenient for many classes of work. We furnish each Saw with one 9-inch blade; it is made to use either 8 or 9-inch blades.

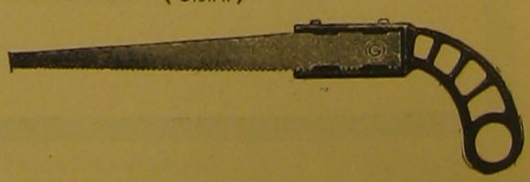
Price ... ... 41/8 each

Goodell Keyhole Hack Saw, No. 237 (Made in U.S.A.)

Everyone who has occasion to use a keyhole saw will appreciate the convenience of a tool like this that will not be damaged by nails. The handle is finished in black enamel; it is light and fits the hand well. The blade is made of the same materials and with just as much care as our regular hack-saw blades.

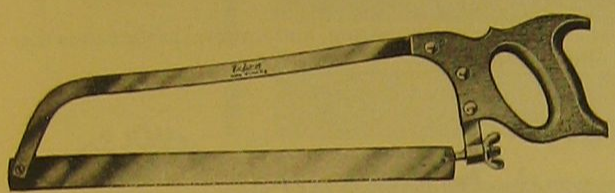
Length overall, 9½ ins. Cutting edge, 5¼ ins. Net weight, 4 ozs.

Price ... 1/– each. Extra Blades ... 6/– per doz.



BUTCHER SAWS & HACK SAW MACHINES

"Eclipse" Butchers Bow Saws No. 88 (British Made)

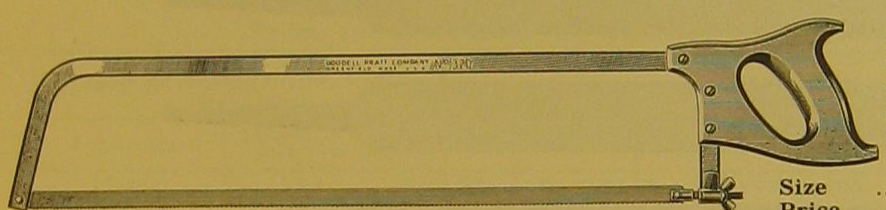


This is a strong and well balanced Bow Saw with chromium-plated finish.

The blade is held by adjusting screw at the rear end, and secured at the forward end by a screw countersunk in the frame to eliminate interference whilst sawing. For replacement of the blade, the screw is slotted so that it can be removed with the edge of a coin.—No riveting required.

Size	14	16	18	20	22 ins.
Price, without blade ...	7/9	8/-	8/3	8/6	8/9 each
Price, with 1¼" blade ...	9/-	9/6	10/-	10/6	11/- each

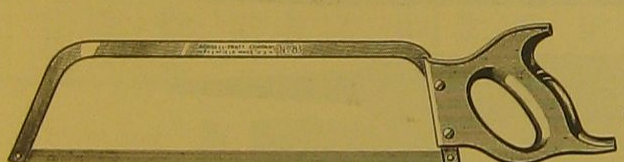
Goodell Butcher Saw Frames, No. 320 (Made in U.S.A.)



Made of ¾×¼ in. round edge steel with hardwood handles. Blades are tensioned by heavy wing nut. Depth of throat, 5 ins. Polished finish. Complete with one ⅝-in. polished and tempered blade.

Size ...	16	18	20	22	24	ins.
Price ...	6/3	6/8	6/8	7/–	7/6	each
Extra Blades.						
No. 420	7/–	8/2	9/2	10/–	10/9	per doz.

Goodell Kitchen Saw, No. 83 (Made in U.S.A.)



A handy Saw for general use in the kitchen. The frame is of ½×$\frac{3}{16}$ in. round edge steel with hardwood handle.

Supplied with one polished and tempered blade, ½ in. wide.

Price, 14" Saw **2/11 each.** **Extra Blades**, 14"×½" **6/3 per doz.**
,, 16" Saw **3/9 each.** ,, ,, 16"×½" **6/8 per doz.**

No. 8A Portable Hack Saw Machine (Made in U.S.A.)

With Screw Adjustment

This is essentially a one-man Machine, and, as compared with the other types of portable saw machines, offers the following important advantages:—

Portability—When set up ready to run the total weight is only about 110 lbs., so that it can be conveniently sent out to any job where power cannot be obtained and easily transferred from one part of a building to another.

Speed—A 9-inch beam is cut through in from 25 to 30 minutes, without the operator needing a rest.

Ease of Working—Saw blades in this machine make clean, straight cuts, and the danger of their breaking is reduced to a minimum.

The machine is specially adapted for cutting girders, rails, etc., and is capable of performing heavy work with a minimum of labour. It carries a 14-inch power blade, is compact, and easily operated by unskilled labour. When cutting square across, a pin in the swivelling head keeps the saw frame in position parallel with the clamping bar. By removing this pin the frame may be swung round to saw at any angle up to 45 degrees, when a fresh hole would be drilled according to the angle required, and the pin re-inserted.

Then again, the hack saw frame link and handle are reversible, and can be located on the right or left of the clamping bar, as desired.

The blades usually supplied are 14×¾ inch×21 gauge, with 14 teeth to the inch.

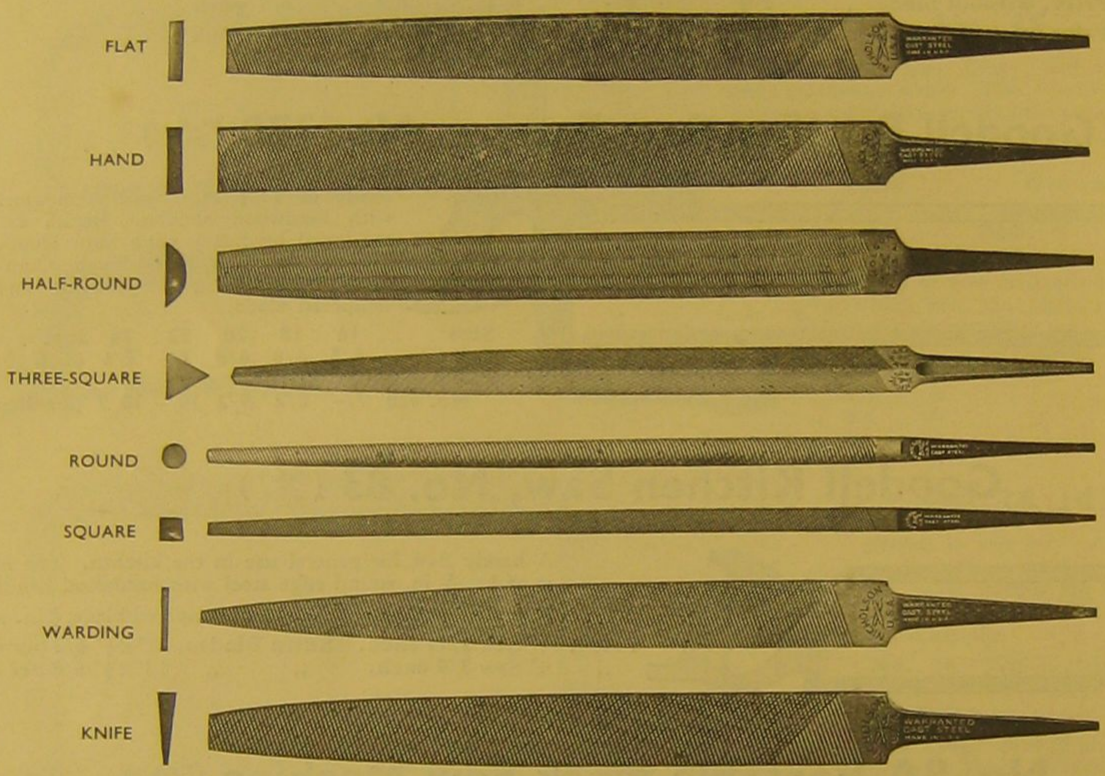
Price, including one dozen blades, on application.

ENGINEERS' FILES

Backed by manufacturing and production experience of nearly three quarters of a century Nicholson Files and Rasps have a world-wide reputation for high quality, accuracy, cutting qualities and long life.

Nicholson Files and Rasps cover a range to meet all requirements. They are quick-cutting, and uniform to the extent that users can predetermine almost to exactness the file value they will obtain from them.

Nicholson Files for Engineers and Mechanics



Prices, per Dozen (Sizes not listed take price of next size larger)

Size Ins.	FLAT HAND, PILLAR			HALF-ROUND			THREE SQUARE			ROUND			SQUARE			WARDING			KNIFE		
	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth	Bast.	2nd Cut	Smooth
4	9/-	10/-	12/-	11/-	13/-	14/-	9/-	11/-	12/-	8/-	9/-	11/-	9/-	11/-	13/-	10/-	11/-	13/-	17/-	19/-	21/-
5	—	—	—	—	—	—	11/-	13/-	15/-	—	—	—	—	—	—	12/-	13/-	15/-	18/-	20/-	22/-
6	11/-	12/-	14/-	14/-	15/-	17/-	12/-	14/-	16/-	10/-	11/-	13/-	11/-	12/-	14/-	14/-	15/-	17/-	20/-	22/-	25/-
7	—	—	—	—	—	—	15/-	16/-	18/-	—	—	—	—	—	—	—	—	—	22/-	24/-	28/-
8	15/-	16/-	19/-	17/-	19/-	22/-	16/-	17/-	20/-	13/-	15/-	17/-	13/-	15/-	18/-	18/-	20/-	25/-	24/-	27/-	32/-
10	20/-	22/-	26/-	21/-	24/-	29/-	21/-	25/-	29/-	16/-	19/-	22/-	17/-	20/-	23/-	23/-	26/-	30/-	30/-	34/-	40/-
12	27/-	30/-	35/-	28/-	32/-	38/-	29/-	34/-	40/-	22/-	26/-	29/-	24/-	27/-	33/-	—	—	—	42/-	47/-	52/-
14	36/-	39/-	46/-	38/-	43/-	50/-	38/-	45/-	53/-	30/-	35/-	39/-	32/-	35/-	41/-	—	—	—	—	—	—
16	46/-	52/-	60/-	52/-	58/-	66/-	52/-	60/-	70/-	45/-	49/-	56/-	45/-	51/-	59/-	—	—	—	—	—	—
18	65/-	72/-	84/-	70/-	80/-	90/-	70/-	80/-	90/-	70/-	80/-	90/-	60/-	68/-	75/-	—	—	—	—	—	—
20	85/-	95/-	108/-	90/-	105/-	120/-	90/-	100/-	115/-	90/-	100/-	120/-	80/-	89/-	100/-	—	—	—	—	—	—

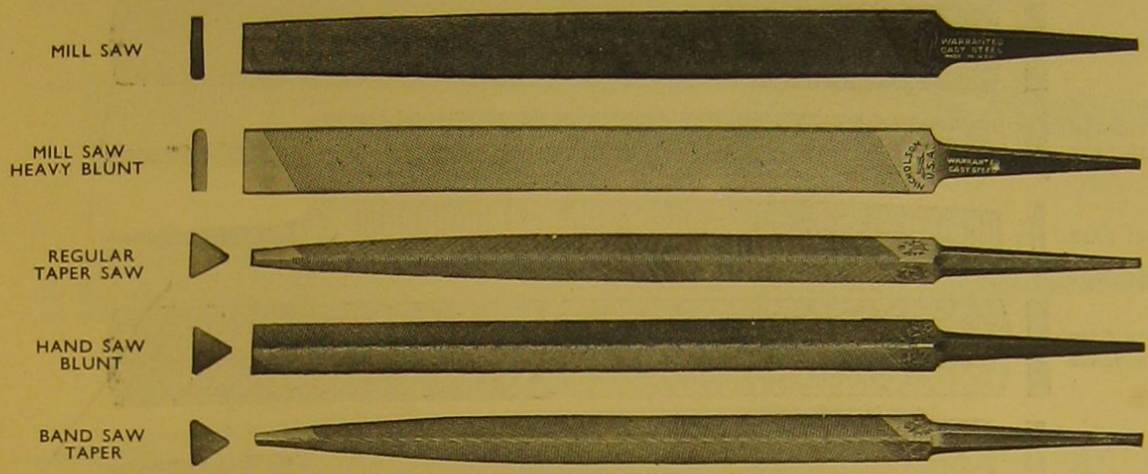
Nicholson Files for Brass

These are flat files specially made for filing brass and have proved satisfactory under test. **Sizes, 10 ins. 27/6 per doz.; 12 ins. 36/- per doz.**

For Nicholson Files for use on Saws—also Rasps, see next pages.

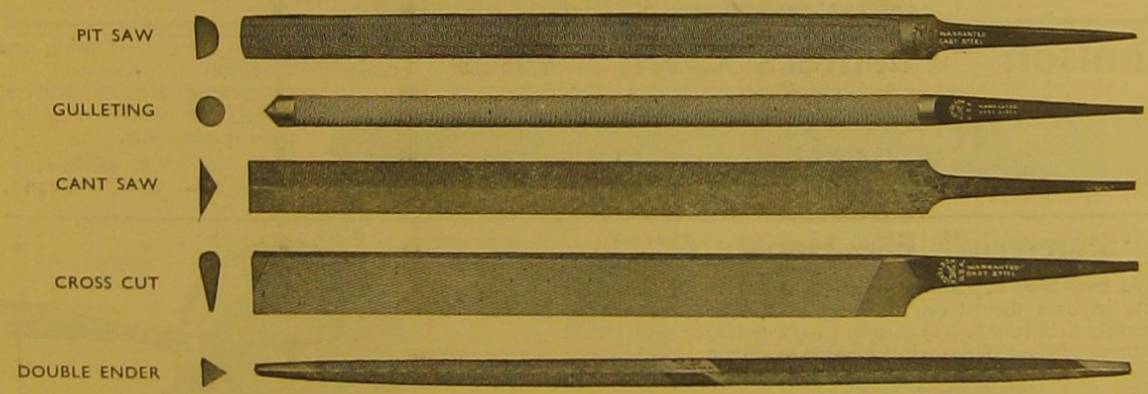
SAW FILES, ETC.

Nicholson Files for Use on Saws (Made in Canada)



Prices, per dozen (sizes not listed take price of next size higher)

Size Ins.	MILL SAW FILES REGULAR (Tapering Sides) or BLUNT (Parallel Sides)							MILL SAW FILES BLUNT, HEAVY 2nd Cut			TAPER SAW FILES						HAND SAW BLUNT Single Cut			BANDSAW	
	2 Square Edges			1 Round Edge		2 Round Edges					HEAVY		REGULAR		SLIM	EXTRA SLIM					
	Bast.	2nd Cut.	Smooth.	Bast.	2nd Cut.	Bast.	2nd Cut.	2 Sq. Edges.	1 Rd. Edge.	2 Rd. Edges	Single Cut	Dble. Cut	Single Cut	Dble. Cut	Single Cut	Single Cut	Hvy.	Reg.	Slim	Taper	Blunt
3	—	—	—	—	—	—	—	—	—	—	7/-	10/-	7/-	10/-	7/-	—	—	—	—	—	—
3½	—	—	—	—	—	—	—	—	—	—	7/-	10/-	7/-	10/-	7/-	—	—	—	—	—	—
4	8/-	9/-	10/-	9/-	10/-	—	—	—	—	—	7/-	10/-	7/-	10/-	7/-	7/-	8/-	8/-	8/-	—	—
4½	—	—	—	—	—	—	—	—	—	—	8/-	11/-	8/-	11/-	8/-	8/-	10/-	10/-	—	—	—
5	—	—	—	—	—	—	—	—	—	—	9/-	12/-	9/-	12/-	9/-	9/-	11/-	11/-	11/-	11/-	12/-
5½	—	—	—	—	—	—	—	—	—	—	10/-	—	10/-	—	10/-	10/-	—	—	—	—	—
6	10/-	12/-	14/-	11/-	13/-	12/-	14/-	—	13/-	14/-	11/-	14/-	11/-	14/-	11/-	11/-	13/-	13/-	13/-	14/-	16/-
7	—	—	—	—	—	—	—	—	—	—	13/-	16/-	13/-	16/-	12/-	12/-	16/-	16/-	—	17/-	20/-
8	13/-	16/-	18/-	14/-	17/-	16/-	19/-	16/-	17/-	19/-	16/-	13/-	16/-	18/-	14/-	14/-	20/-	20/-	17/-	20/-	24/-
9	—	—	—	—	—	—	—	—	—	—	20/-	—	20/-	—	17/-	—	—	—	—	—	—
10	17/-	20/-	23/-	18/-	22/-	20/-	23/-	20/-	22/-	23/-	24/-	—	24/-	—	20/-	—	—	30/-	—	29/-	35/-
12	23/-	26/-	29/-	25/-	28/-	27/-	29/-	26/-	28/-	29/-	—	—	38/-	—	30/-	—	—	—	—	—	—
14	31/-	34/-	37/-	35/-	38/-	39/-	42/-	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16	44/-	49/-	53/-	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Prices, per dozen (sizes not listed take price of next size higher)

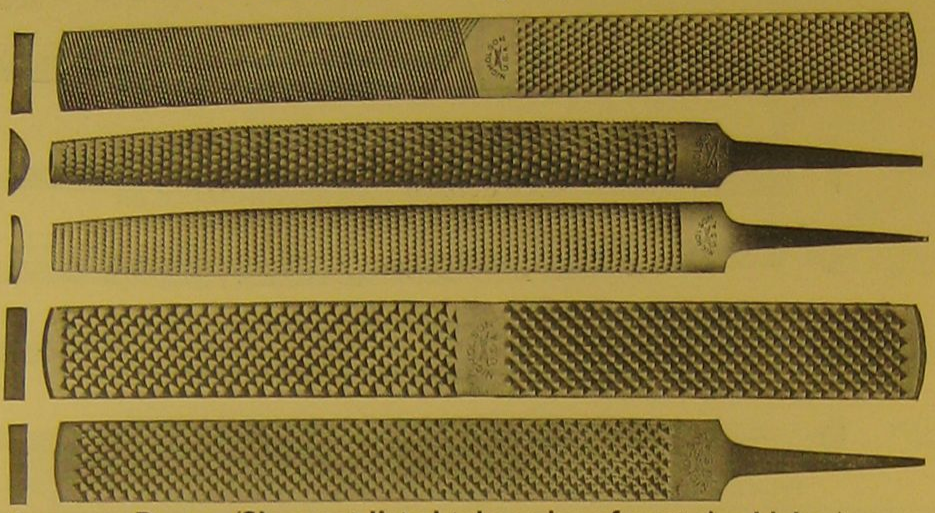
Size Ins.	PIT-SAW Single Cut	ROUND GUL-LETING —	CANT SAW —	CROSS CUT —	DOUBLE-ENDER —	Size Ins.	PIT-SAW Single Cut	ROUND GUL-LETING —	CANT SAW —	CROSS CUT —	DOUBLE-ENDER —
4	9/-	10/-	11/-	—	—	10	—	—	30/-	28/-	17/-
5	11/-	12/-	13/-	—	—	12	—	—	40/-	37/-	20/-
6	14/-	15/-	16/-	19/-	11/-	13	—	—	—	—	—
7	18/-	18/-	18/-	—	12/-	14	—	—	—	—	—
8	22/-	22/-	20/-	21/-	13/-	15	—	—	—	—	—
9	—	—	—	24/-	15/-	16	—	—	—	—	—

FILE CARD AND FILE BRUSHES

File Card for cleaning Files ... ... 6d. per foot.
File Brushes ... ... 5/- per dozen.

FOR NICHOLSON RASPS, SEE NEXT PAGE.

Nicholson Rasps (Made in Canada)



Prices, per Dozen (Sizes not listed take price of next size higher)

Size	SHOE RASPS		WOOD RASPS Half-Round			CABINET RASPS Half-Round		HORSE RASPS			
								PLAIN (without Tang)			TANGED
Ins.	Flat	Half-Round	Bast.	2nd Cut	Smooth	Regular	Smooth	¼ or ½ File Regular	Slim	½ File Reverse	Half File
4	—	—	—	—	—	—	—	—	—	—	—
5	—	—	—	—	—	—	—	—	—	—	—
6	18/-	21/-	16/-	17/-	18/-	19/-	23/-	—	—	—	—
7	—	21/-	—	—	—	—	—	—	—	—	—
8	21/-	24/-	20/-	22/-	23/-	25/-	29/-	—	—	—	—
9	23/-	26/-	—	—	—	—	—	—	—	—	—
10	26/-	29/-	25/-	28/-	30/-	30/-	36/-	25/-	—	—	—
12	—	—	33/-	37/-	38/-	38/-	46/-	30/-	—	30/-	36/-
13	—	—	—	—	—	—	—	35/-	—	—	42/-
14	—	—	43/-	48/-	50/-	52/-	60/-	40/-	—	40/-	48/-
15	—	—	—	—	—	—	—	46/-	—	46/-	56/-
16	—	—	55/-	61/-	65/-	—	—	54/-	50/-	54/-	65/-
18	—	—	—	—	—	—	—	71/-	60/-	—	—

Nicholson "Farmers Own" Files (Made in Canada)

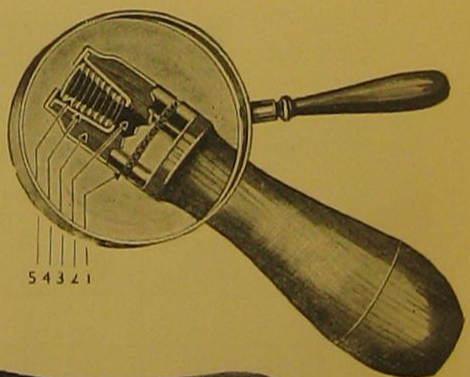
Useful for general work, and especially adapted for sharpening Reaper Knives, Hoes, Machetes and other farm implements.

Size 6 8 inches.
Price 5/- 6/- per dozen.

Parker "Shur-grip" File Handle (Made in U.S.A.)

This new type of handle which **screws on to the file**, cuts its own thread on the tang of the tool, and being securely held in this way cannot slip, wobble, or split. The features of the "Shur-grip" Handle are illustrated below.

1. **Steel ferrule**, securely forced into the wood.
2. **Hollow centre**, to take extended tang of file.
3. **Handle** made of selected hardwood.
4. **Pressed steel casing** prevents thread from turning or expanding.
5. **Case-hardened flexible steel thread** cuts into the tang like a die, holding the file absolutely rigid.



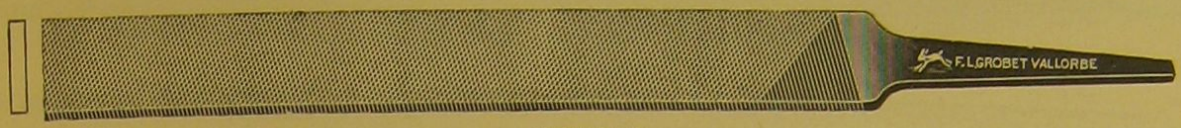
Nos.	2	3	4	5	
Sizes ...	4	4½	5	5½	ins.
For Files	3" to 6"	6" to 10"	10" to 14"	14" to 18"	
Price ...	**5/-**	**6/3**	**7/6**	**10/-**	**dozen**

COMET File Handles (British Made)

These are well shaped handles fitted with an iron ferrule, we can supply from stock.

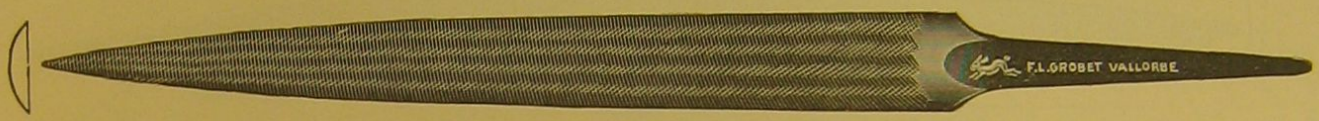
Sizes	**4**	**4½**	**5**	**ins. long.**
Prices	**10d.**	**1/-**	**1/1**	**dozen.**

Genuine Grobet Swiss Files (Foreign)



HAND-FLAT

PILLAR



HALF-ROUND

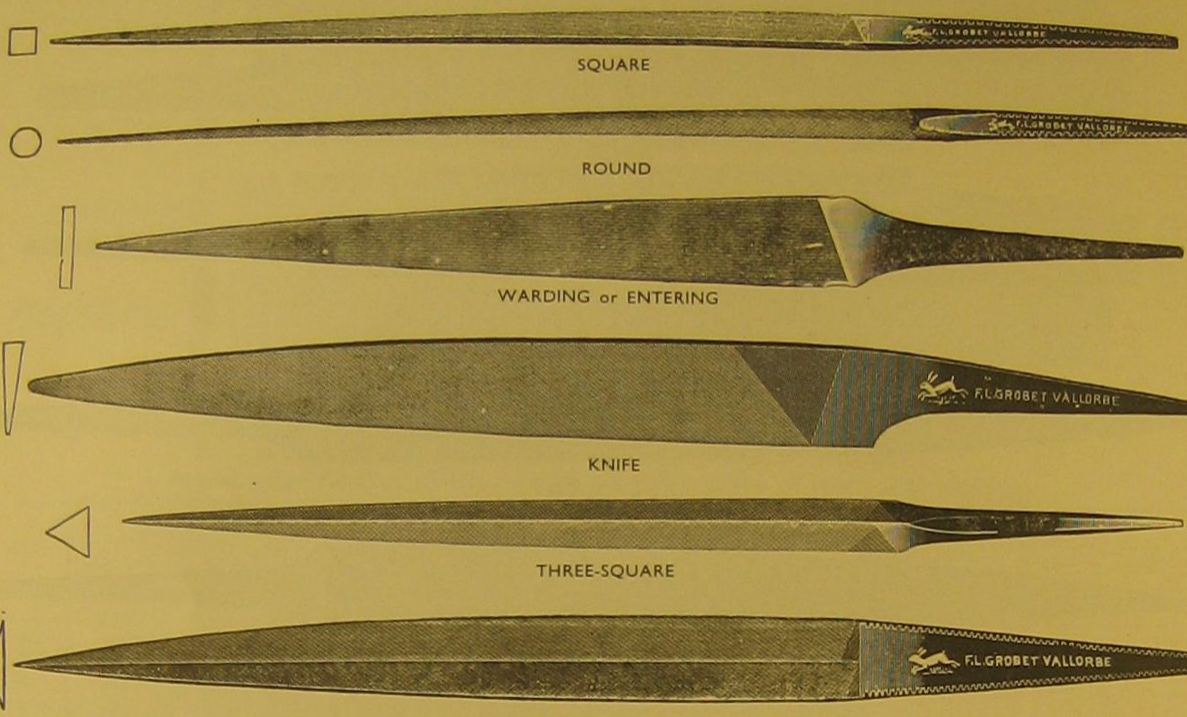
CROSSING

BARRETTE

General Price List (continued on next page)

	Description.	inches	2	2½	3	3½	4	4½	5	6	8	10
Hand	Cut Nos. 00–0 ...	per doz.	11/6	11/10	12/4	13/8	15/2	16/8	19/-	21/-	32/-	46/-
	,, 1–2 ...	,,	11/10	12/4	12/10	14/-	15/8	17/6	20/-	22/6	34/-	50/-
	,, 3–4 ...	,,	12/4	12/8	13/2	14/6	16/-	18/4	21/-	24/4	37/2	54/-
	,, 5–6 ...	,,	14/4	14/8	15/2	16/8	18/6	21/-	23/-	27/-	42/-	60/-
	,, 7–8 ...	,,	17/2	17/8	18/6	20/-	22/8	24/6	28/-	33/-	48/-	70/-
Pillar and Narrow Pillar	Cut Nos. 00–0 ...	per doz.	11/-	11/6	11/10	12/6	13/2	14/8	16/-	18/-	27/-	40/-
	,, 1–2 ...	,,	11/2	11/10	12/4	13/-	14/-	15/8	17/-	19/6	29/-	42/-
	,, 3–4 ...	,,	11/8	12/4	12/8	13/8	15/-	16/8	18/6	21/-	31/-	45/-
	,, 5–6 ...	,,	14/-	14/8	15/-	16/-	17/6	19/-	21/-	24/-	35/-	50/-
	,, 7–8 ...	,,	17/-	18/-	18/8	19/8	21/-	23/-	25/-	28/-	40/-	56/-
Half-round	Cut Nos. 00–0 ...	per doz.	12/8	13/4	14/-	15/-	16/6	18/4	20/-	25/-	40/-	56/-
	,, 1–2 ...	,,	13/-	13/8	14/6	15/6	17/-	19/4	21/6	27/-	42/-	60/-
	,, 3–4 ...	,,	13/6	14/4	15/-	16/-	19/-	22/-	24/-	30/-	46/-	68/-
	,, 5–6 ...	,,	14/-	15/6	16/-	18/-	21/-	24/-	27/-	33/-	52/-	78/-
	,, 7–8 ...	,,	14/8	16/8	17/8	20/-	24/-	26/-	30/-	37/-	60/-	96/-
Crossing	Cut Nos. 00–0 ...	per doz.	12/-	12/6	13/6	15/-	18/-	22/-	24/-	30/-	50/-	70/-
	,, 1–2 ...	,,	12/6	13/-	14/4	15/10	19/6	23/-	26/-	32/-	54/-	78/-
	,, 3–4 ...	,,	13/-	13/8	15/-	16/10	21/-	24/-	28/-	34/-	60/-	90/-
	,, 5–6 ...	,,	13/10	14/8	15/10	18/-	22/6	26/-	30/-	37/-	70/-	110/-
	,, 7–8 ...	,,	14/10	15/8	16/8	19/8	24/-	28/-	34/-	42/-	82/-	130/-
	,, 9–10 ...	,,	15/10	16/8	17/6	21/4	25/8	30/-	38/-	47/-	94/-	150/-
Barrette	Cut Nos. 00–0 ...	per doz.	11/4	13/-	13/8	16/-	20/-	22/-	26/-	32/-	38/-	48/-
	,, 1–2 ...	,,	11/4	13/-	13/10	16/4	20/6	22/6	27/-	33/-	40/-	52/-
	,, 3–4 ...	,,	11/4	13/6	14/-	16/6	21/-	23/-	28/-	35/-	43/-	56/-
	,, 5–6 ...	,,	11/6	13/10	14/6	16/10	22/-	24/6	30/-	38/-	46/-	60/-
	,, 7–8 ...	,,	11/6	14/6	15/-	17/6	23/-	26/-	33/-	41/-	50/-	64/-
	,, 9–10 ...	,,	12/6	15/-	15/8	18/-	24/-	27/6	36/-	44/-	54/-	68/-

Genuine Grobet Swiss Files (Foreign



General Price List (continued from previous page)

Description.		inches	2	2½	3	3½	4	4½	5	6	8	10
Square	Cut Nos. 00–0 ...	per doz.	8/4	8/6	8/8	10/-	12/10	13/8	14/6	18/6	29/-	41/-
	,, 1–2 ...	,,	8/4	8/6	8/8	10/-	13/4	14/-	14/10	18/8	30/-	42/-
	,, 3–4 ...	,,	8/4	8/6	8/8	10/-	13/8	14/6	15/4	19/-	31/-	44/-
	,, 5–6 ...	,,	8/4	8/6	8/8	10/-	14/-	14/10	15/8	21/-	32/-	48/-
	,, 7–8 ...	,,	8/4	8/6	8/8	10/-	14/8	15/8	18/-	23/-	34/-	54/-
Round	Cut Nos. 00–0 ...	per doz.	5/10	6/-	6/2	7/-	9/8	11/-	12/-	14/10	23/-	32/-
	,, 1–2 ...	,,	5/10	6/-	6/2	7/2	9/10	11/4	12/6	15/4	24/-	35/-
	,, 3–4 ...	,,	5/10	6/-	6/4	7/4	10/-	11/6	12/10	15/8	26/-	38/-
	,, 5–6 ...	,,	5/10	6/4	6/4	7/6	10/4	11/8	13/4	16/4	28/-	41/-
	,, 7–8 ...	,,	5/10	6/4	6/6	8/4	11/4	12/8	14/4	17/8	31/-	48/-
	,, 9–10 ...	,,	6/4	6/10	7/-	9/-	12/4	13/8	15/4	19/-	34/-	55/-
Warding or Entering	Cut Nos. 00–0 ...	per doz.	10/4	10/10	11/6	12/-	14/-	16/-	18/-	22/-	30/-	46/-
	,, 1–2 ...	,,	10/4	11/4	12/-	13/4	15/2	17/6	19/-	23/8	32/-	49/-
	,, 3–4 ...	,,	10/4	11/8	12/8	14/6	16/6	18/6	20/6	25/4	34/-	57/-
	,, 5–6 ...	,,	11/6	13/-	14/4	16/-	18/4	20/-	23/-	28/-	39/-	58/-
	,, 7–8 ...	,,	12/8	14/6	15/10	18/6	21/-	22/-	25/-	31/-	44/-	64/-
Knife	Cut Nos. 00–0 ...	per doz.	11/6	13/-	14/-	16/-	18/-	21/-	24/-	27/-	48/-	62/-
	,, 1–2 ...	,,	11/6	14/-	15/-	17/-	19/-	22/-	25/-	28/-	50/-	64/-
	,, 3–4 ...	,,	11/6	15/-	16/-	18/-	20/-	23/-	26/-	30/-	52/-	66/-
	,, 5–6 ...	,,	11/6	16/-	17/-	19/6	22/-	26/-	29/-	34/-	56/-	72/-
	,, 7–8 ...	,,	11/6	17/-	18/-	20/10	24/-	29/-	32/-	38/-	62/-	78/-
Three-square and Narrow Three-square	Cut Nos. 00–0 ...	per doz.	11/8	12/4	13/-	13/6	14/10	16/-	18/-	23/8	36/-	50/-
	,, 1–2 ...	,,	11/8	12/4	13/6	13/10	15/6	16/8	18/6	24/4	37/-	52/-
	,, 3–4 ...	,,	11/8	12/4	13/10	14/4	16/-	17/4	19/-	24/10	38/-	54/-
	,, 5–6 ...	,,	11/8	12/10	14/10	15/4	18/-	19/-	20/8	27/4	42/-	58/-
	,, 7–8 ...	,,	11/8	12/10	16/10	18/-	21/-	23/-	25/4	31/-	48/-	66/-
Cant or Barrette, three sides cut	Cut Nos. 00–0 ...	per doz.	14/6	18/-	18/8	24/-	28/-	32/-	35/-	40/-	60/-	—
	,, 1–2 ...	,,	14/6	18/8	19/-	24/8	28/10	33/-	36/-	42/-	63/-	—
	,, 3–4 ...	,,	14/6	19/-	19/6	25/4	30/-	34/-	37/-	44/-	66/-	—
	,, 5–6 ...	,,	14/6	20/-	20/6	25/10	31/4	36/-	40/-	48/-	74/-	—
	,, 7–8 ...	,,	14/6	20/8	21/-	26/6	32/6	38/-	42/-	52/-	78/-	—
	,, 9–10 ...	,,	15/6	21/4	21/8	27/-	33/8	40/-	44/-	56/-	82/-	—

FILES

Genuine Grobet Swiss Crochet, Equalling, and Slitting Files

(Foreign)

CROCHET OR HOOK FILE

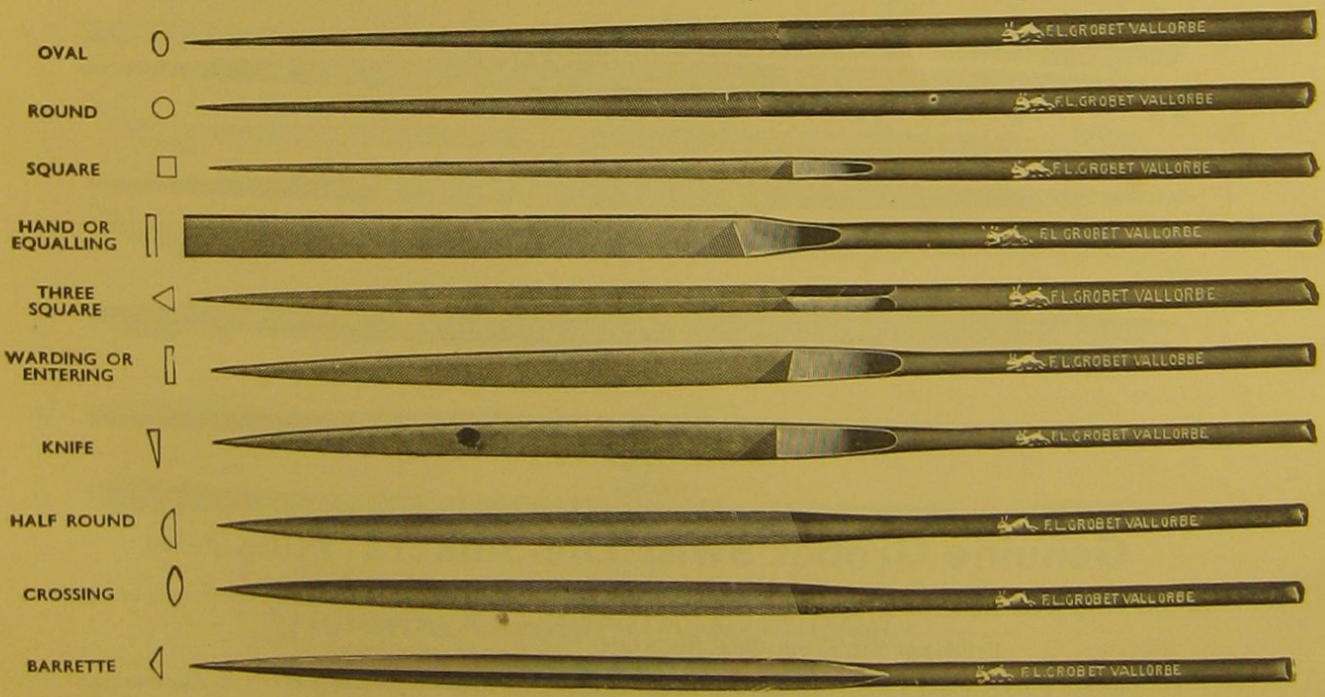
EQUALLING FILE, DOUBLE CUT

SCREWHEAD FILE, WITH TANG, DOUBLE CUT

Sizes and Prices of Crochet, Equalling, and Slitting Files

Description.		Length, inches	2½	3	4	5	6	8
Crochet or Hook	Cut Nos. 00–0 ...	per doz.	12/10	13/4	18/-	22/-	29/-	38/-
	,, 1–2 ...	,,	13/4	13/8	19/-	23/-	30/-	40/-
	,, 3–4 ...	,,	13/8	14/-	20/-	24/-	31/-	44/-
	,, 5–6 ...	,,	15/6	16/6	22/-	27/-	34/-	50/-
	,, 7–8 ...	,,	17/6	19/-	24/-	30/-	38/-	58/-
Equalling, Double Cut	Cut Nos. 00–0 ...	per doz.	10/8	11/8	15/-	20/-	25/-	32/-
	,, 1–2 ...	,,	11/6	12/4	16/-	21/-	26/-	34/-
	,, 3–4 ...	,,	13/4	13/6	17/-	23/-	27/-	37/-
	,, 5–6 ...	,,	15/8	16/-	21/-	30/-	36/-	46/-
	,, 7–8 ...	,,	18/-	19/-	26/-	35/-	41/-	53/-
Screwhead	Single or Double Cut	,,						
	Without tang up to 3 ins.	,,	13/8	14/6	23/-	33/-	41/-	50/-
	With tang 4–8 ins.	,,						

Genuine Grobet Swiss Needle Files, Round Handle, No. 203 (Foreign)

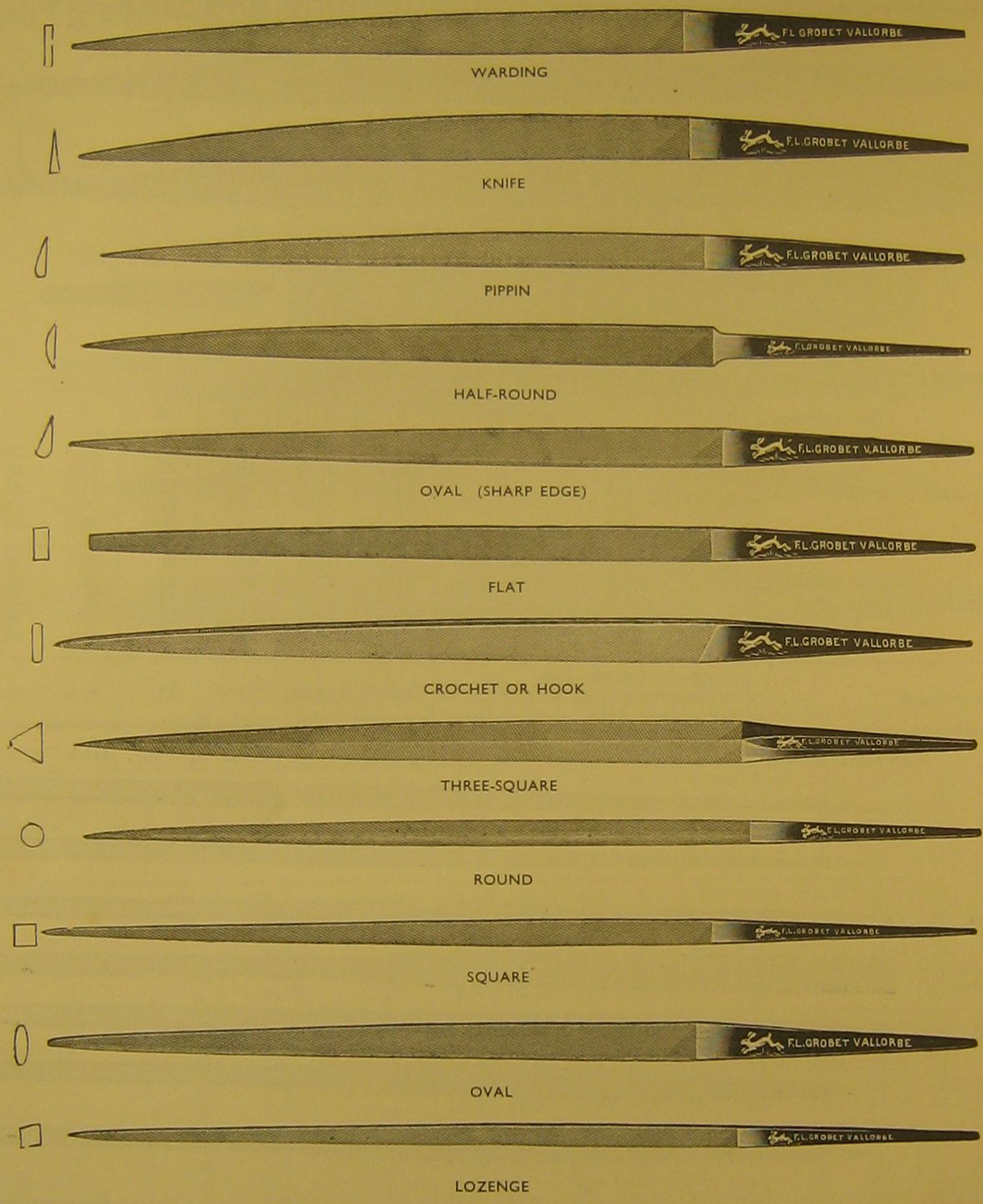


Sizes and Prices.

The complete range of Needle Files including the following shapes:—Oval, Round, Square, Hand, Three-square, Entering, Knife, Half-round, Crossing, Barrette.

Length Overall, ins.	5½	6⅜	7¼
Price, Round only, Assorted Cuts, per doz.	7/4	8/–	8/10
,, **all other shapes,** ,, ,, ...	10/2	11/8	13/4

FILES



Genuine Grobet Swiss Die-Sinkers' Files (Foreign)

In Sets of 12 following shapes:—Warding, Knife, Pippin, Half-round, Oval (sharp edge), Flat (1 safe edge), Hook, Three-square, Round, Square, Oval, Lozenge.

Price, per Set, 3½ ins. long, No. 2 Cut 14/6

These Sets can be supplied larger or smaller, to order only.

Die-Sinkers' Files can also be obtained to order in any of the above shapes separately. Prices on Application.

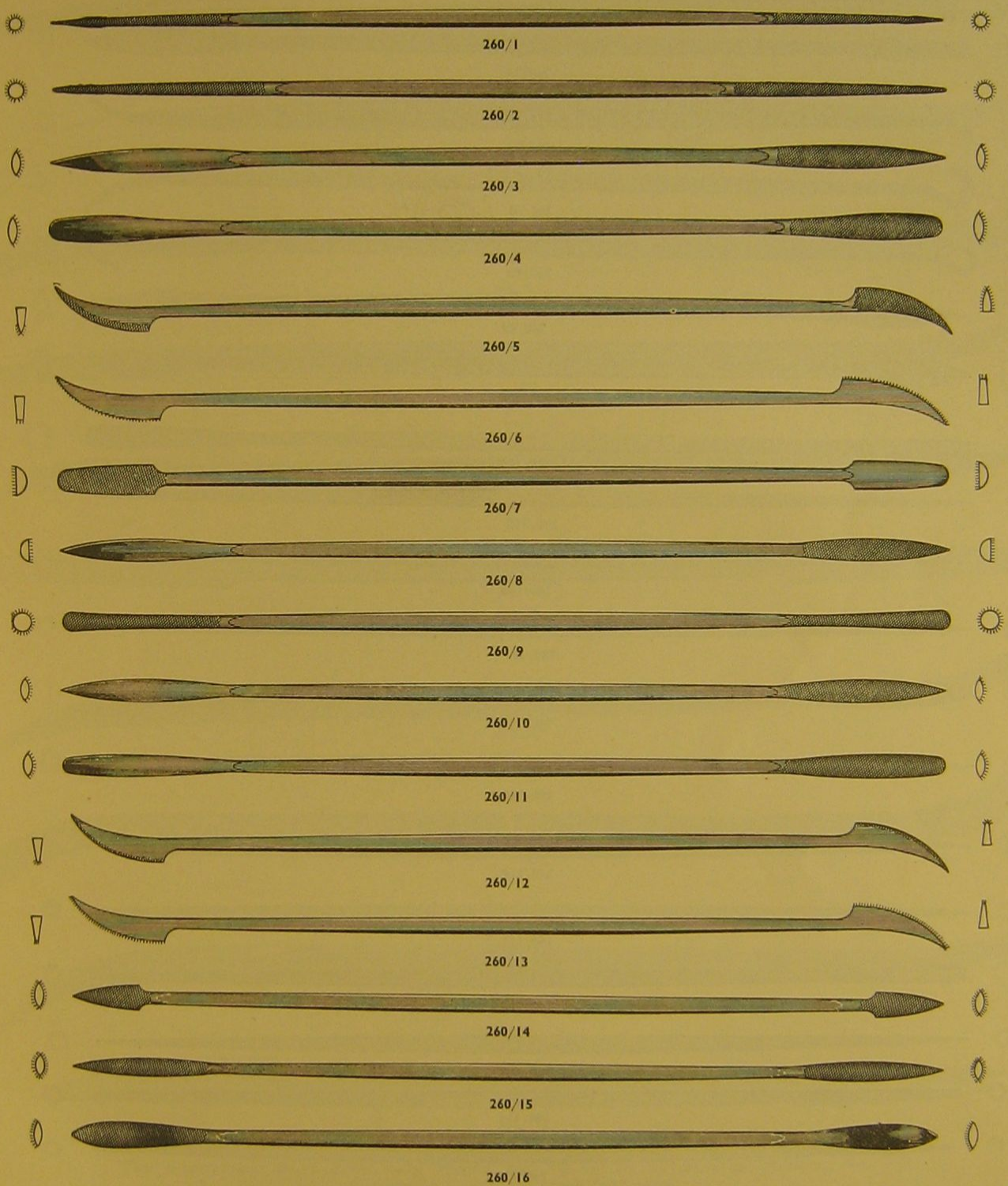
PIPPIN FILES ONLY

Length, inches ...			3	4	5	6
Price, per dozen.	Cut Nos.	00–0	16/–	19/–	22/–	28/–
,, ,,	,,	1–2	16/–	19/8	23/–	29/–
,, ,,	,,	3–4	16/–	20/4	24/–	30/–

Length, inches ...			3	4	5	6
Price, per dozen.	Cut Nos.	5–6	16/–	21/4	25/6	32/–
,, ,,	,,	7–8	16/–	22/4	26/–	34/–

FILES

Shape No.



Genuine Grobet Swiss Files (Foreign)

Regular Rifflers, No. 260 (Series 1 to 16)

Sizes and Prices

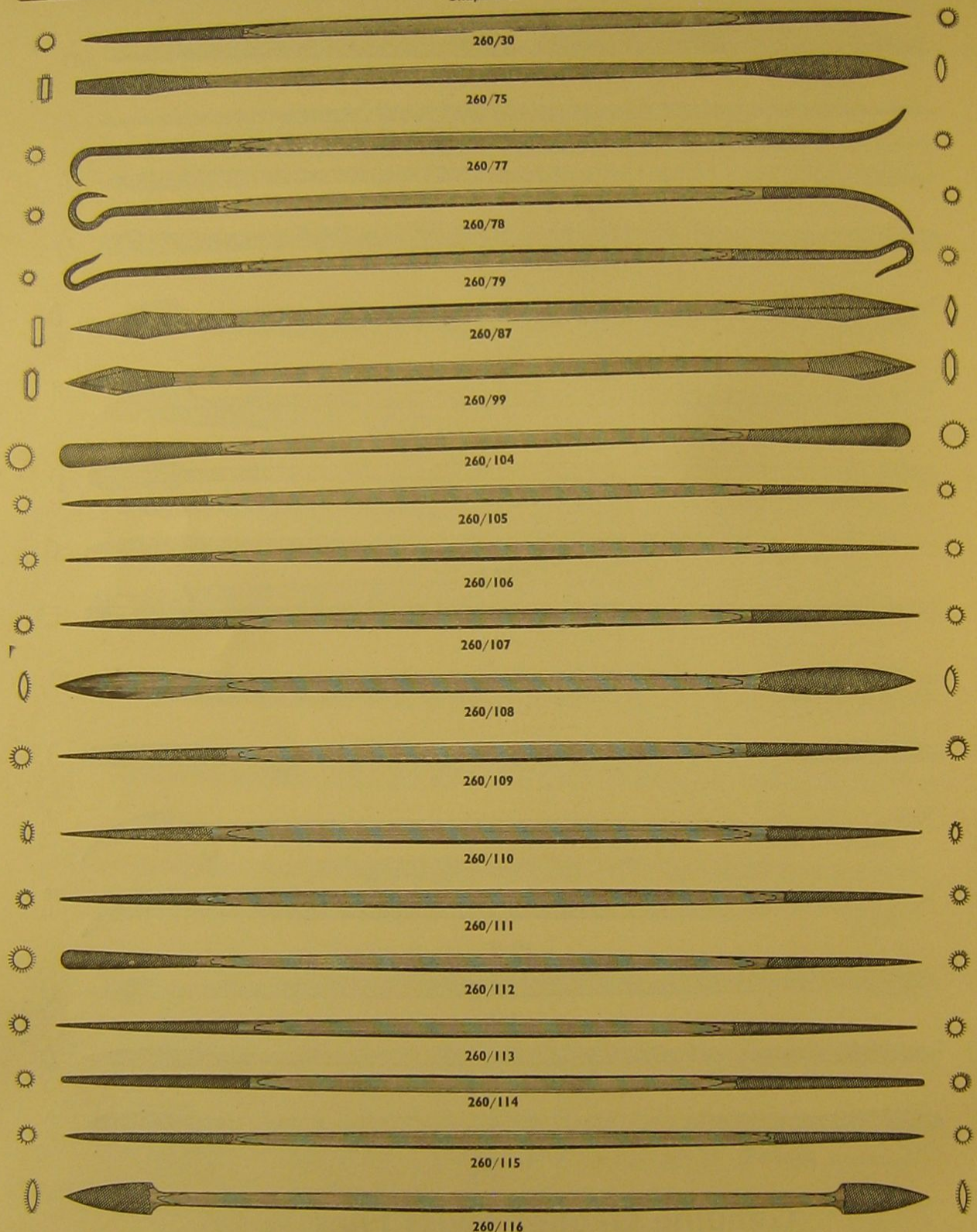
In Sets of 16 Rifflers, Nos. 260/1 to 260/16 (as illustrated), Medium, 15 cm. (approx. 6 ins.) 33/10

" " " " " " " Large, 17 cm. (approx. 6¾ ins.) 35/4

Rifflers, any shapes ... ... 15 cm. (approx. 6 ins.), 25/4 doz.; 17 cm. (approx. 6¾ ins.), 26/6 doz.

FILES

Shape No.



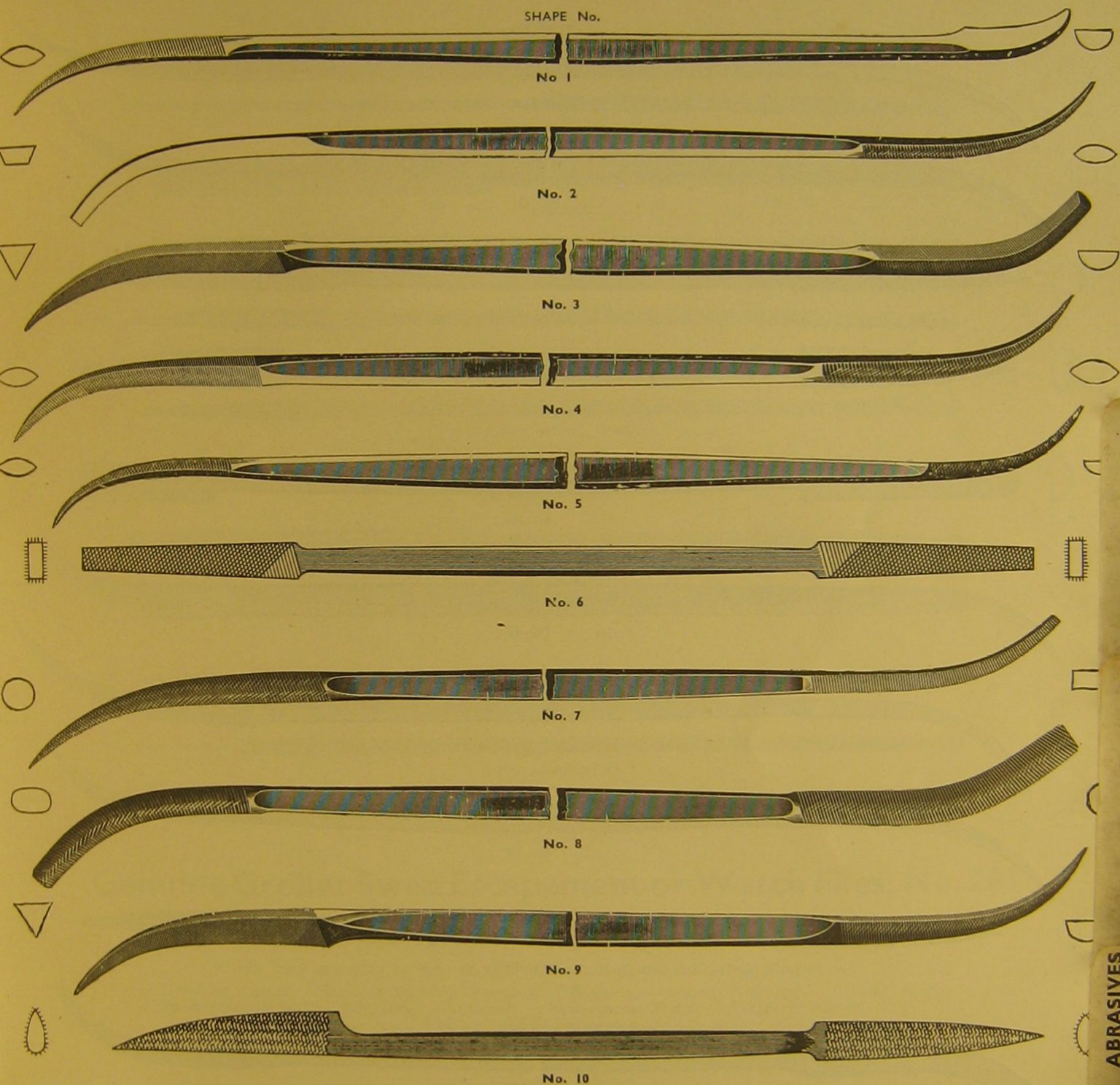
Genuine Grobet Swiss Files (Foreign)

Regular Rifflers, No. 260

Sizes and Prices

In Sets of 20 Rifflers, Nos. 260/30 to 260/116 (as illustrated), Medium, 15 cm. (approx. 6 ins.) **42/4**

Rifflers, any shapes ... 15 cm. (approx. 6 ins.), **25/4** doz.; 17 cm. (approx. 6¾ ins.), **26/6** doz.



The illustrations above show only Shapes Nos. 1 to 10 Silversmiths' Rifflers, No. 262.
For Shapes Nos. 11 to 20 see next page.

Genuine Grobet Swiss Files (Foreign)

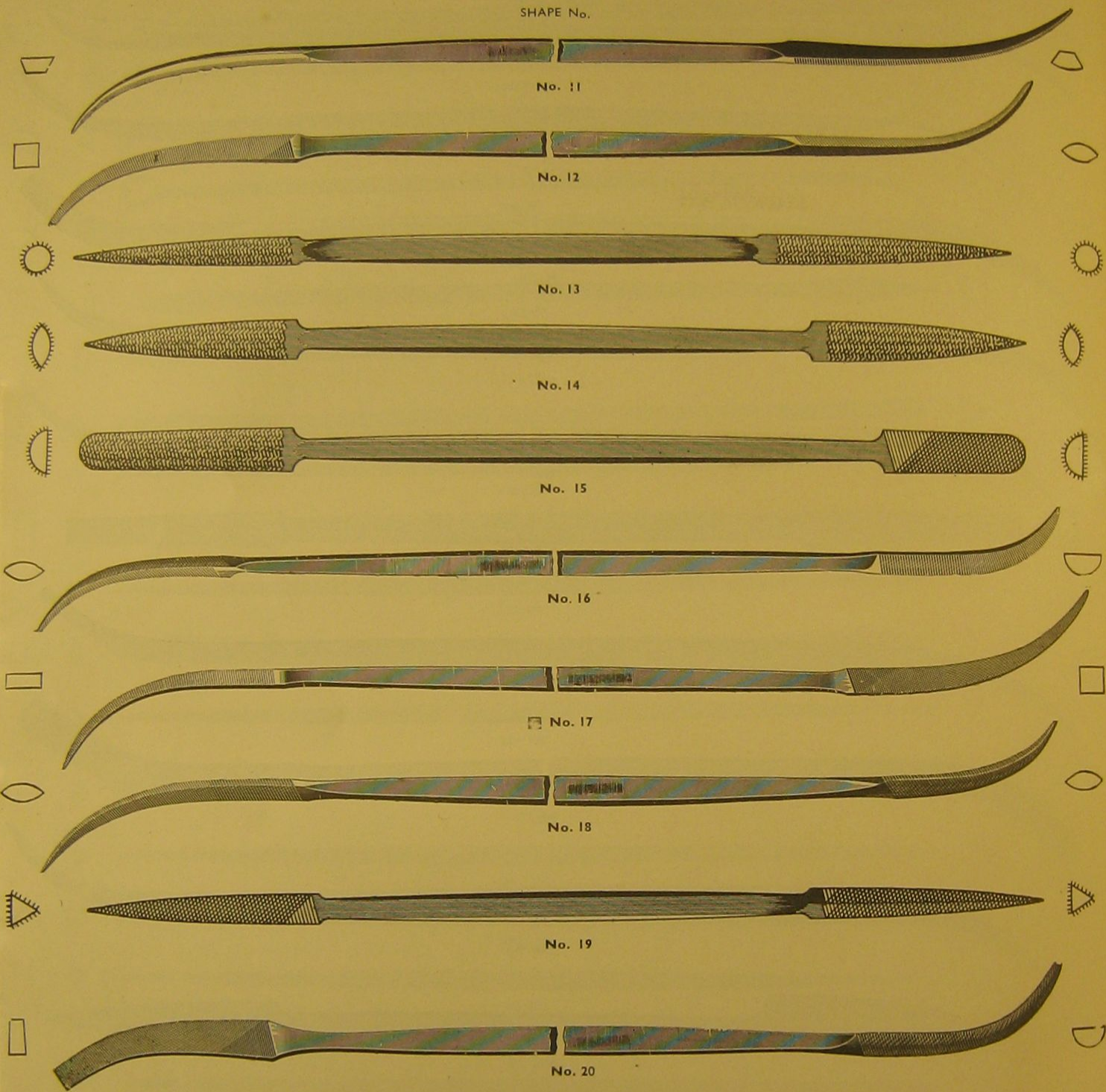
Rifflers for Silversmiths, No. 262

Sizes and Prices

In Sets of 20 Rifflers, Nos. 262/1 to 262/20, 16 cm. (approx. 6¼ ins.), 51/6 ; 18 cm. (approx. 7 ins.), 55/- per Set.

Rifflers, any shapes, 16 cm. (approx. 6¼ ins.), 30/10 doz.; 18 cm. (approx. 7 ins.), 33/- doz.

SHAPE No.



The illustrations above show only Shapes Nos. 11 to 20 Silversmiths' Rifflers, No. 262.
For shapes Nos. 1 to 10 see previous page.

Genuine Grobet Swiss Files (Foreign)

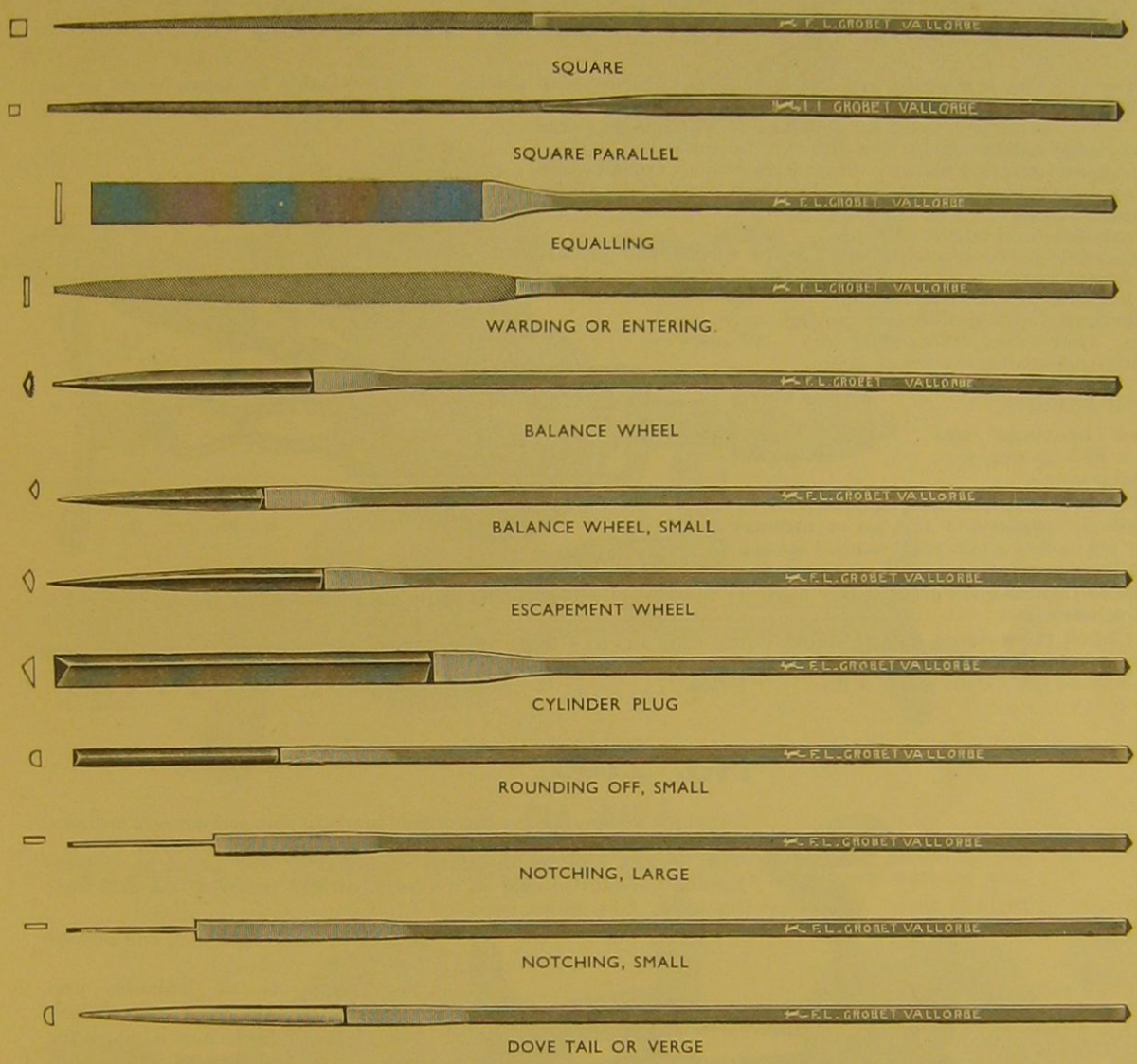
Rifflers for Silversmiths, No. 262

Sizes and Prices

In Sets of 20 Rifflers, Nos. 262/1 to 262/20, 16 cm. (approx. 6¼ ins.), 51/6 ; 18 cm. (approx. 7 ins.), 55/- per Set.

Rifflers, any shapes, 16 cm. (approx. 6¼ ins.), 30/10 doz.; 18 cm. (approx. 7 ins.), 33/- doz.

FILES



Genuine Grobet Swiss Escapement or Watch Files, No. 201

(Foreign)

With Square Handles, in Sets of 12 Files

These files are sold in sets of twelve, including the following Shapes:—

Notching Large. Notching Small. Plugging. Entering. Square Notching. Balance Wheel. Escapement Wheel. Equalling. Cylinder. Escapement Tooth. Verge. Square.
All 5½ inches long.

Price, per Set 12/-

Genuine Grobet Swiss Sparking Plug Files (Foreign

These Spark Plug Files are of the same high standard in respect to steel and cutting quality as the regular lines of Grobet Files so well known. The Files are specially designed for cleaning Spark Gaps in Spark Plugs, Magnetos, Ignition Coils, and Contact Points. They are of uniform thickness throughout, and are bevel pointed. Overall length of Files, about 6¼ inches.

Price, per doz. 5/-

Millers Falls—Goodell Pratt Breast Drills (Made In U.S.A.)

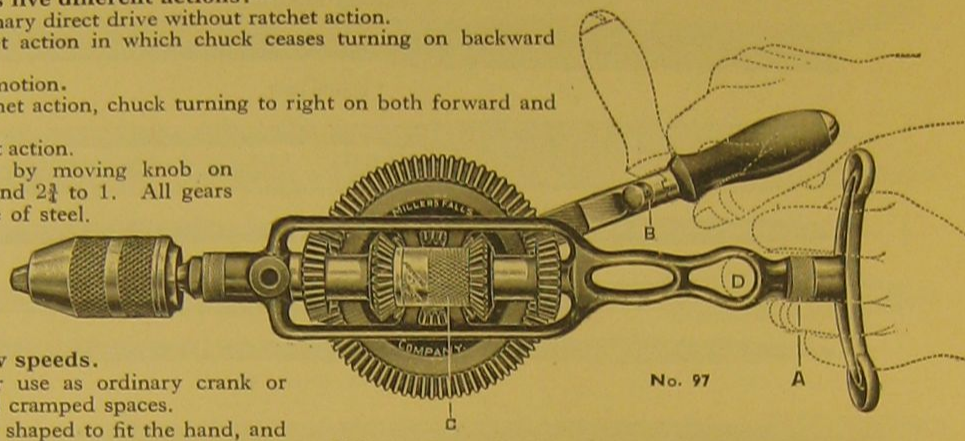
No. 97

This is a strong tool and is built to withstand hard service. It is invaluable for repair work on set up machinery, automobiles, etc., and owing to its wide range of movements and operations is extremely useful for operating in inaccessible places.

An easily adjusted ratchet gives five different actions:—

1. Neutral position, gives ordinary direct drive without ratchet action.
2. Ordinary right-hand ratchet action in which chuck ceases turning on backward stroke of crank.
3. Ordinary left-hand ratchet motion.
4. Continuous right-hand ratchet action, chuck turning to right on both forward and backward strokes.
5. Continuous left-hand ratchet action.

Speed is instantly changeable by moving knob on crank handle. Gear ratios, even and 2¾ to 1. All gears have cut teeth, and small gears are of steel.



No. 97

Special Features

Ball thrust bearings are fitted, and a take-up nut provides against wear.

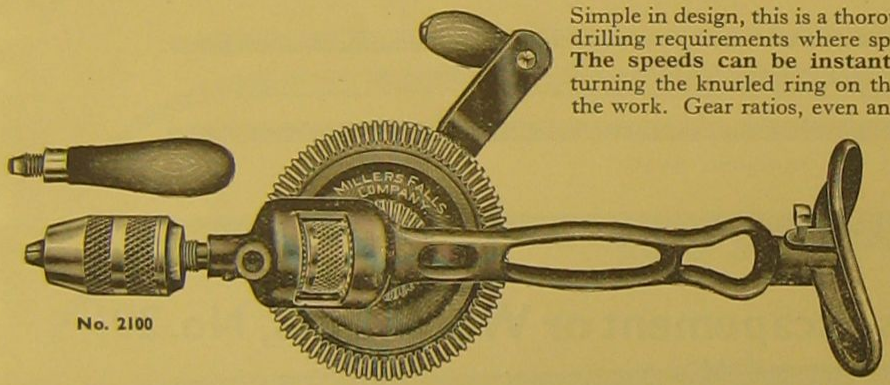
Bushings separate fast and slow speeds.

Crank handle is adjustable for use as ordinary crank or straight lever for ratchet action and cramped spaces.

Breastplate is of special design shaped to fit the hand, and has a fingerhole to ensure good grip. Large auxiliary breastplate which can be easily clamped over the regular breastplate is provided for heavy work.

Three-jaw Chuck for holding round shank drills only up to ⅛ inch diameter. The jaw springs are in the base of the chuck and protected against dirt and injury. Frame is of malleable iron. Handles of selected hardwood. Length, 17½ inches; net weight about 9 lbs. **Price ... ... £2 8 6 each**

No. 2100



No. 2100

Simple in design, this is a thoroughly practical tool, and answers ordinary drilling requirements where speed change only is necessary.

The speeds can be instantly changed at any point by slightly turning the knurled ring on the body, without removing the drill from the work. Gear ratios, even and 3 to 1.

Gears are machine cut, and pinions are of steel.

The frame is of malleable iron enamelled. Bright parts are polished.

The 3-jaw chuck has a capacity for round shanks up to ½ inch diameter. Springs protected. Length, 17½ inches. Weight, 5¾ lbs.

Price ... ... £1 3 9 each

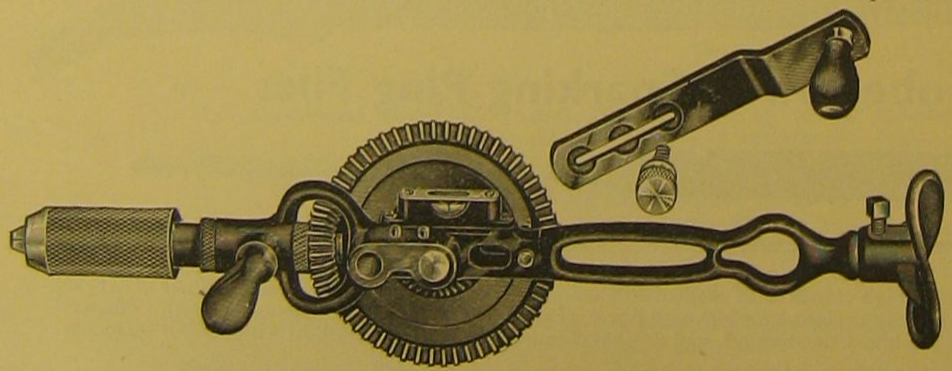
No. 12

This is a very popular type of breast drill, simple in design. strong, and well made.

An important feature is the double thrust bearing. There are two sets of ball bearings which render this drill very free running. A nut is provided to take up wear at the bearings.

The speed is changed by removing set screw and shifting large gear to alternate position. The gear ratios are even and 3 to 1.

Both gears are machine cut, the pinion is of steel, and an idler roll is fitted to equalise the bearing.



The crank handle may be extended to give a radius from 4 to 6 inches. The breastplate is adjustable and removable.

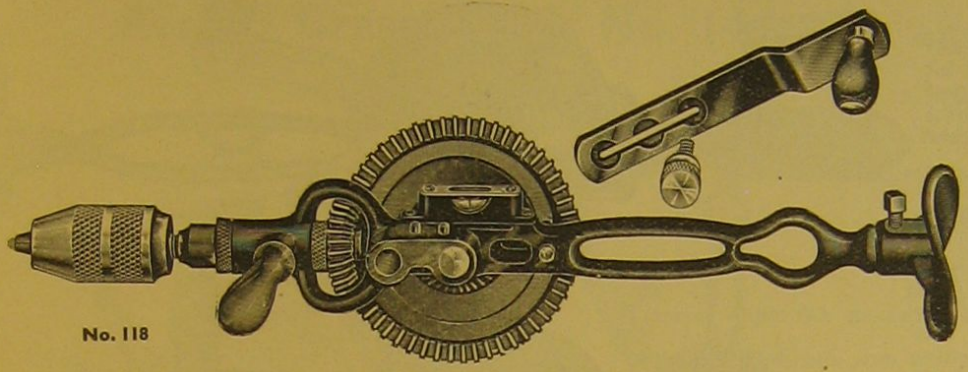
A patent level attachment is fitted.

The 2-jaw chuck has a capacity for bit stock shanks, round shanks from ⅛ to ½ inch, and No. 1 Morse taper shanks.

Length overall, 17½ inches. Weight 6½ lbs.

Price ... £1 3 0 each

Millers Falls—Goodell Pratt Breast Drills (Made in U.S.A.)

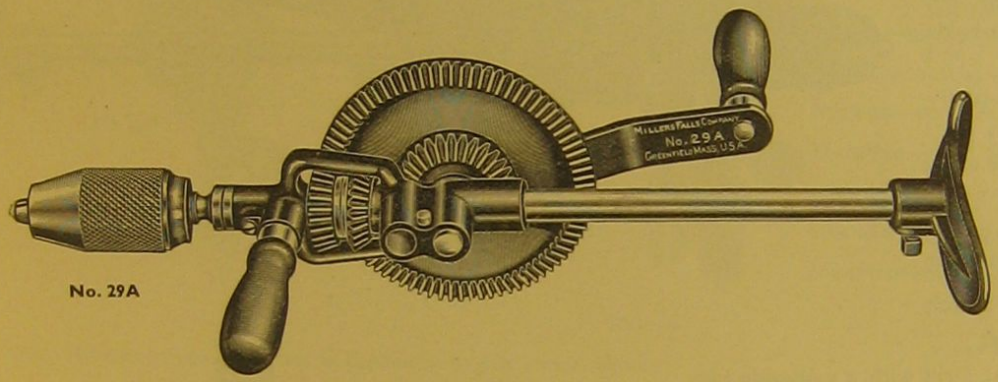


No. 118

No. 118

This Breast Drill is similar to No. 12, shown on next page, except in the chuck, which is of the 3-jaw pattern and holds round shank drills only up to ½ inch diameter.

Price ... £1 1 6 each



No. 29A

No. 29A

Is similar to No. 19A, except that the chuck is of the three-jaw pattern.

Chuck Capacity: Holds round shanks up to ½ inch diameter.

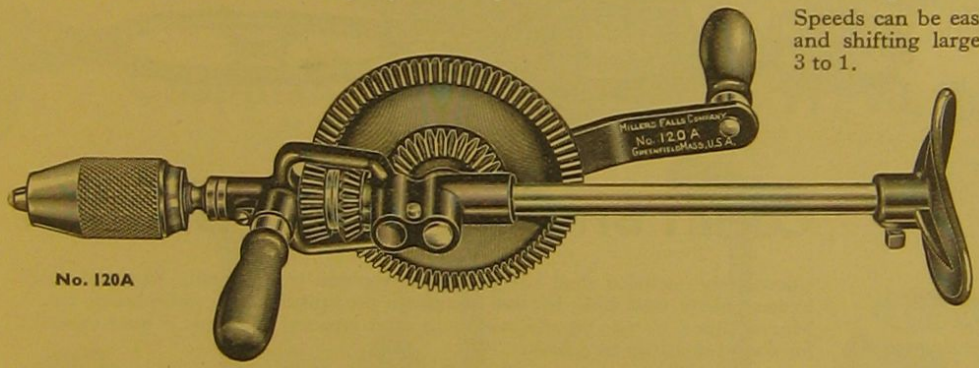
Length Overall, 16½ ins.
Weight ... 4⅝ lbs.

Price ... £1 0 9 each

No. 120A

This Breast Drill is well made and meets the requirements of an efficient tool at a minimum cost. The frame is of rolled steel and cast iron. Bright parts are polished. Pinions are of steel and gears machine cut.

Speeds can be easily changed by pressing spring and shifting large gear. Gear ratios, even and 3 to 1.



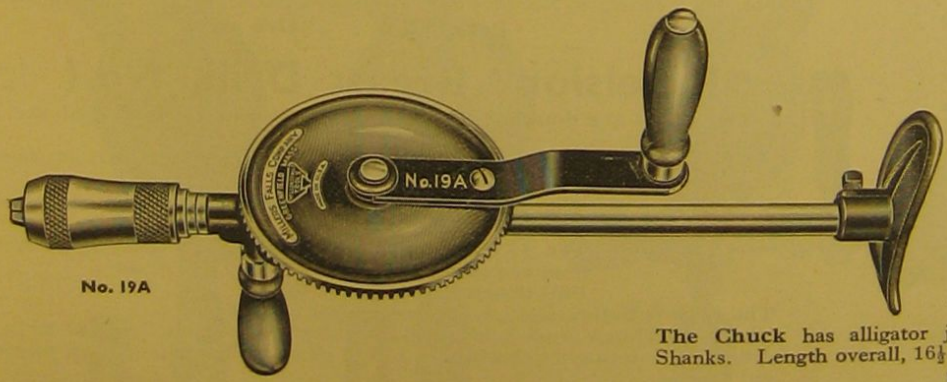
No. 120A

Ball thrust bearings are fitted and the breastplate is adjustable to various positions.

Three-jaw chuck with improved protected spring has a capacity for round shanks up to ½ inch diameter. Length, 16½ ins. Weight, 4⅝ lbs.

Price, No. 120A 14/- each

No. 19A



No. 19A

Has ball thrust bearing and cut gears.

Speed is variable from even to 3 to 1.

The Crank is adjustable from 4 to 7 inches.

The Breastplate is adjustable to different positions.

The Handle is of stained hardwood.

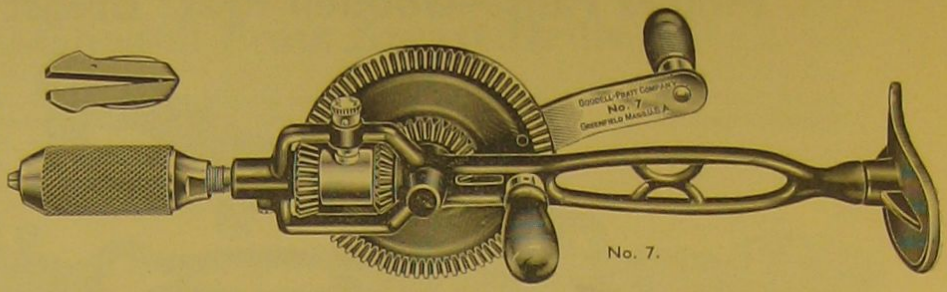
The Frame is cast iron, japanned, with rolled steel main stock.

The Chuck has alligator jaws for **holding bit stock** Shanks. Length overall, 16½ ins. Weight, 4¾ lbs.

Price ... 13/6 each

Millers Falls—Goodell Pratt Breast Drills (Made in U.S.A.)

No. 7.



No. 7.

This Drill is similar in general features to No. 6a, but is fitted with improved bit brace chuck. **Two sets of forged steel jaws are supplied, one for holding square or bit brace shanks, the other for round shanks.**

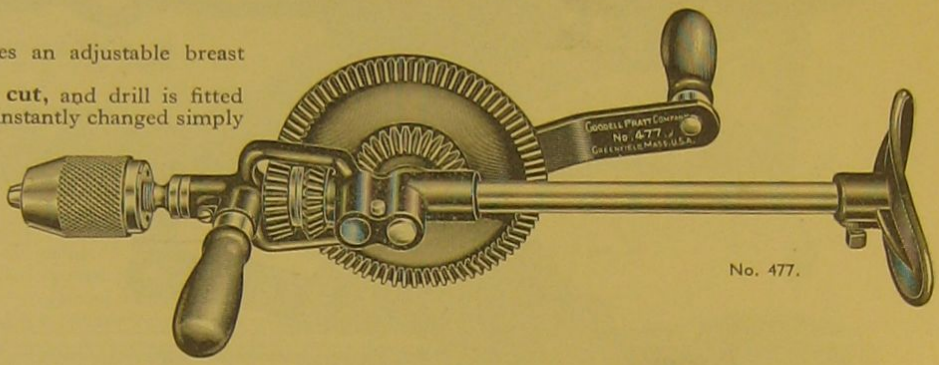
Length overall, 17 inches. Weight, 4¾ lbs.

Price ... ... £1 5 0 each

No. 477.

The strong compact frame of this tool carries an adjustable breast plate.

All gear teeth are accurately machine cut, and drill is fitted with **a unique gear shift,** the speeds being instantly changed simply by pushing the button in the frame, pulling out the large gear and spindle and inserting it in the other bearing. A spring lock holds it in place. Gear ratios are 3·56 to 1 and 1·48 to 1.



No. 477.

3-jaw chuck is of steel, and has capacity for round shanks 0 to ½ inch. diam.

Length overall, 16½ ins. Weight, 4⅝ lbs.

Price ... ... 20/10 each

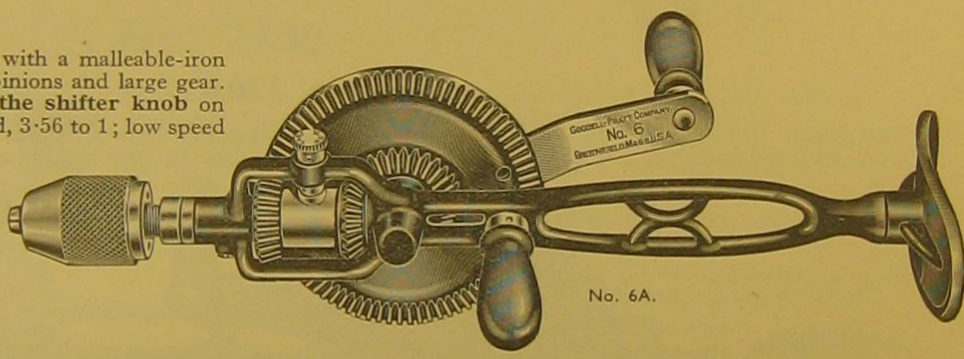
No. 0477.

Is generally similar to No. 477, but not so well finished, and designed to sell at a lower price.

Price ... ... 13/3 each

No. 6A.

This is a good standard type Breast Drill with a malleable-iron frame and machine-cut teeth on the steel pinions and large gear. **Two speeds are obtained by turning the shifter knob** on the frame; the gear ratios being—high speed, 3·56 to 1; low speed 1·48 to 1.

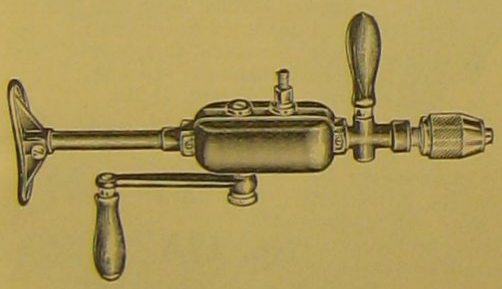


No. 6A.

The chuck is of steel with three hardened jaws; it has a capacity for round shanks 0 to ½ inch diameter.

Length overall, 16 ins. Weight, 4½ lbs.

Price ... ... 17/– each



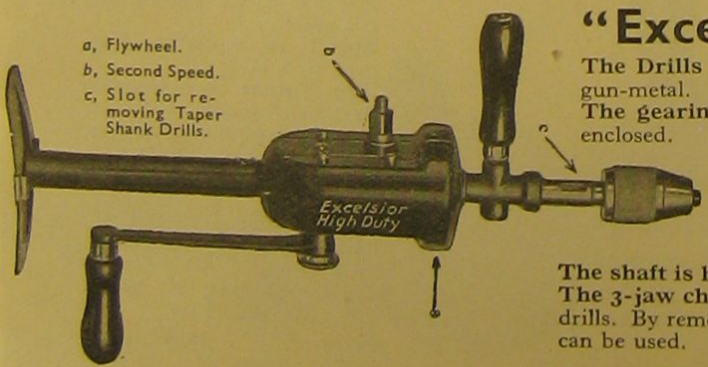
COMET Breast Drills Nos. 436½ & 444

(Foreign)

Completely enclosed steel cut gears are provided in this drill. **Pressed steel breast plate and ball-thrust bearings on spindle.** Spindle bored No. 1 Morse Taper, to take taper shank drills after removal of chuck. Chuck capacity for round drills up to ½ inch.

No. 436½ ... ... Price 15/– each

No. 444 is similar to No. 436½ described above, but embodies a heavy enclosed flywheel. **Price ... ... 22/6 each.**



"Excelsior" Breast Drill, No.1 (British Made)

The Drills are double back geared, all gears are cut from solid steel and gun-metal.

The gearing runs in double bearings, and all working parts are entirely enclosed.

The flywheel conduces towards steady running, smooth, accurate drilling.

The "Excelsior" has two speeds, by changing the handle from one side to the other.

Ball thrust bearings are fitted.

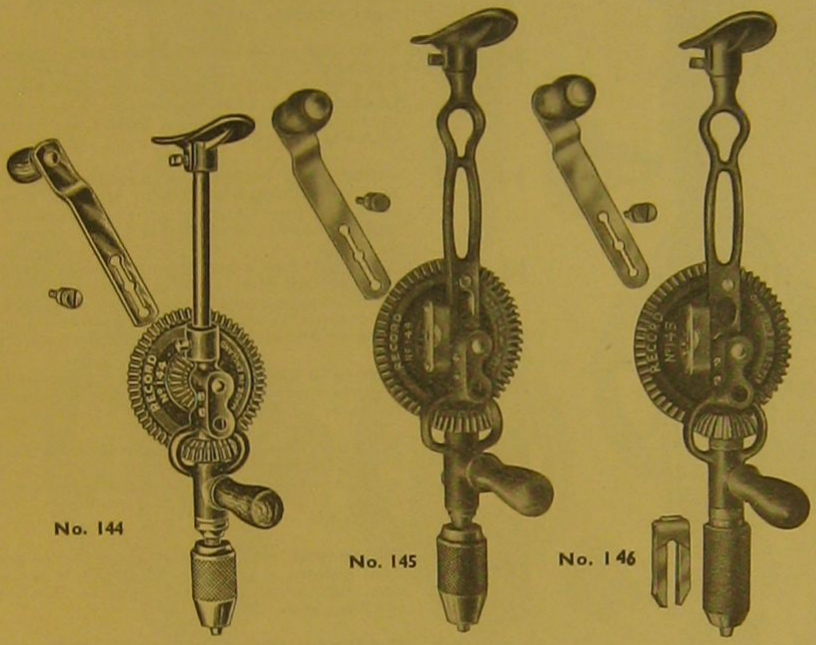
The shaft is hollow and serves as a container for drills.

The 3-jaw chuck firmly holds small size straight shanks, also standard bit stock drills. By removing the chuck, No. 1 M.T shank drills up to 9/16 inch diameter can be used.

Length about 19 ins. Weight, 6½ lbs.

Price, No. 1. With 3-Jaw Chuck and Morse Taper No. 1 ... **£1 15 0**

Record Breast Drills No. 144, 145, and 146 (British Made)



These are high-class tools made to the following specification:—

Body. No. 144. Cast iron with steel shank, ball-thrust bearings, adjustable breast plate.

No. 145 and 146. Malleable iron with ball-bearings to spindle. Ball thrust bearings, adjustable breast plate. Spirit level attached.

Gears—machine cut, mounted on steel pinion with idler roll to equalise bearing.

Speeds—two-press plunger for quick change.

Handles—solid hardwood, crank handle is adjustable from 4 to 6 in.

Chucks—all steel.

Length overall, 18 ins. Weight 6 lbs.

Prices

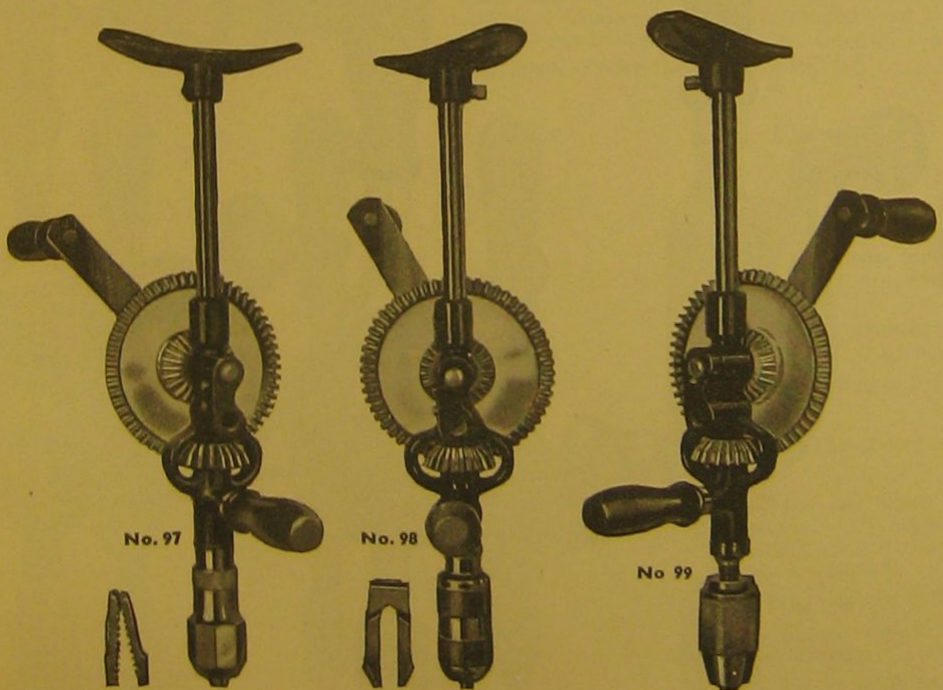
No. 144 with **three-jaw chuck**, capacity 0 to ½ in. round shanks ... ... **15/– each**

No. 144 with **master two-jaw chuck**, capacity ⅛ to ½ in. round shanks, bit stock shanks, and No. 1 M.T. shanks **16/6 each**

No. 145 with **three-jaw chuck**, capacity 0 to ½ in. round shanks ... ... **21/– each**

No. 146 with **master two-jaw chuck**, capacity ⅛ to ½ in. round shanks, bit stock shanks, and No. 1 M.T. shanks **22/6 each**

Chapman Breast Drills Nos. 97, 98, and 99 (British Made)



These high-class Breast Drills are nicely finished in stoved enamel and have the bright parts of chromium or cadmium plated, this treatment rendering them entirely rust-proof.

The drills are fitted with two speed gear changes and hardened thrust bearing to spindle.

Prices

No. 97 with **two-jaw chuck** (alligator jaws) ... **12/– each**

No. 98 with **Master two-jaw chuck**, capacity 0 to ½ in. **15/– each**

No. 99 with **three-jaw chuck** capacity 0 to ½ in. **12/6 each**

Millers Falls — Goodell Pratt Hand Drills (Made in U.S.A.)

All these Hand Drills are fitted with 3-jaw chuck and have cut gears, steel pinions and hardwood handles. Special features applying to the various types are given below:—

No. 980 **Solid-end main handle. For rapid drilling. Is a 2-speed drill,** fitted with ball bearings. Gear ratios 1½ to 1 and 4 to 1. Speed changed by turning knurled barrel. Idler pinion counteracts outward thrust of large gear. Side handle is removable. Three-jaw chuck.

No. 2 **Fitted with hollow-end handle, with screw cap, containing 8 bits,** 1/16 to 1/4 inch. Frame is malleable iron. Large gears are enamelled, other parts nickeled. Gear ratio 4½ to 1.

No. 5 **This drill has a hollow-end handle and contains 8 drill bits,** 1/16 to 1/4 inch. Malleable iron frame. Single speed. Large gears enamelled, and are made extra wide for finger and thumb turning when on delicate work. Double pinions are fitted.

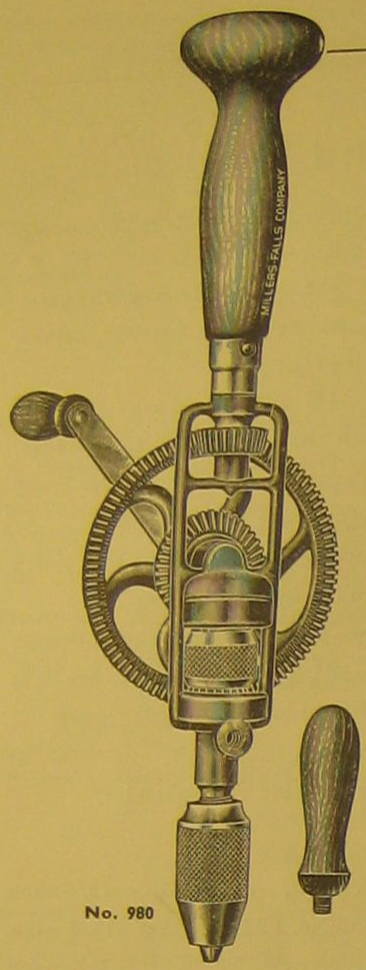
No. 05 **Has solid handle** only and no drill points are furnished with this tool, which, otherwise, is similar to No. 5.

No. 38 **With hollow-end screw cap handle containing 8 drill points** 1/16 to 1/4 inch. This is a single speed drill with solid large gear and enclosed steel pinion. Frame is die cast and enamelled. Weight only 2¼ lbs.

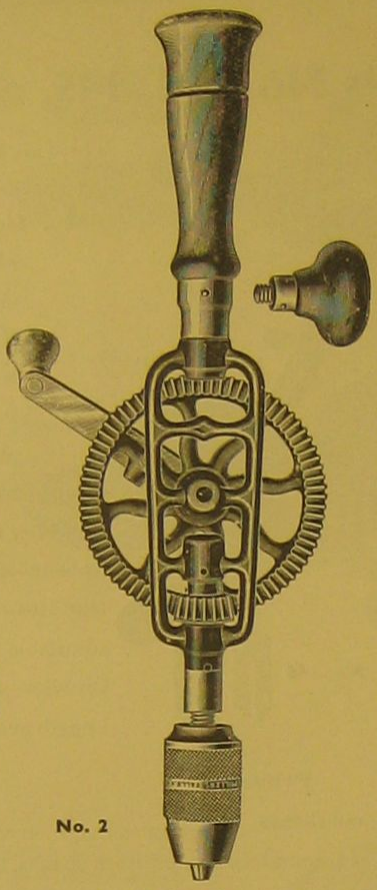
No. 1 **Hollow-end screw cap handle containing 8 drill points,** 1/16 to 1/4 inch. Frame is malleable iron. Ball thrust bearings on spindle. Steel pinion and large enamelled gear.

No. 77 **Has Double Pinions and Solid handle** and no drill points are furnished. This is a tool for those whose work does not demand the refinements of the higher priced hand drills. Length 12½ ins,

Nos.	980	2	5	05	38	1	77
Chuck Capacity, in.	0–3/8	0–3/8	0–1/4	0–1/4	0–3/8	0–1/4	0–1/4
Price, each ...	22/6	18/9	14/9	13/-	13/3	11/6	6/6



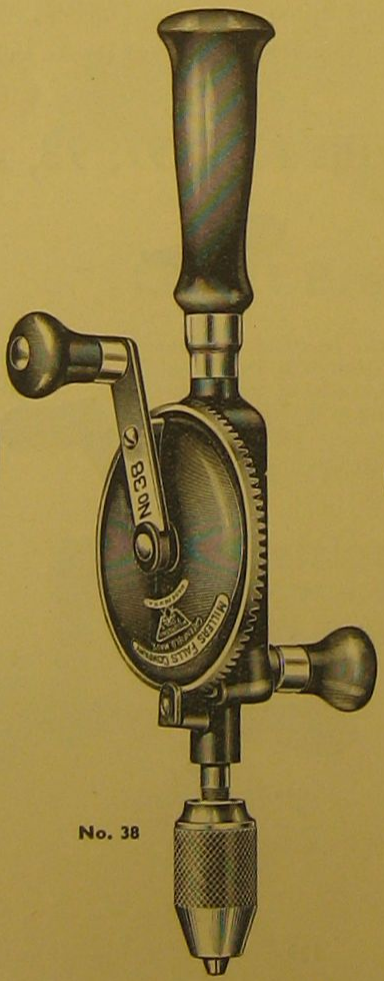
No. 980



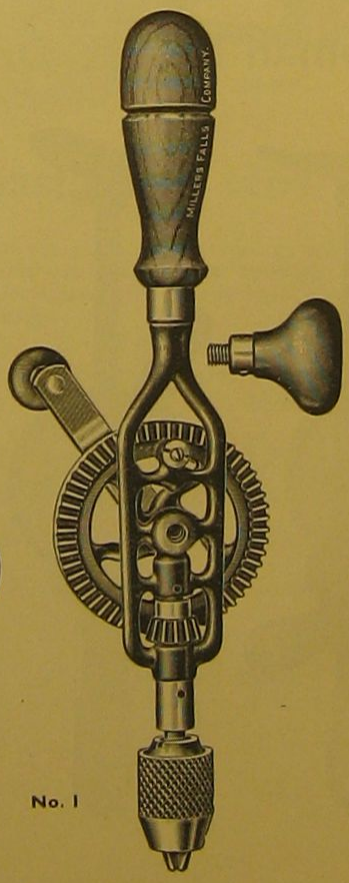
No. 2

No. 5 WITH HOLLOW HANDLE.

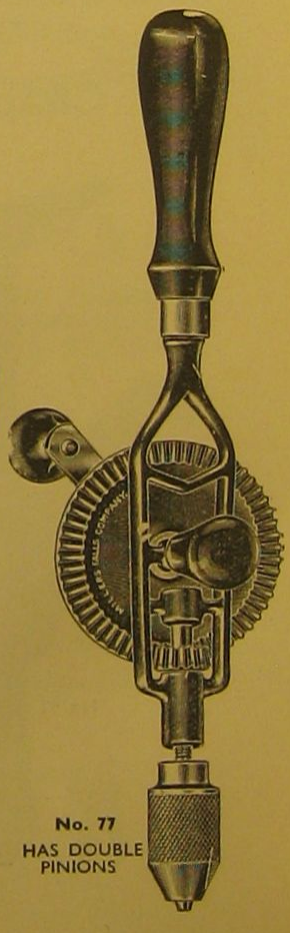
No. 05 HAS SOLID HANDLE.



No. 38

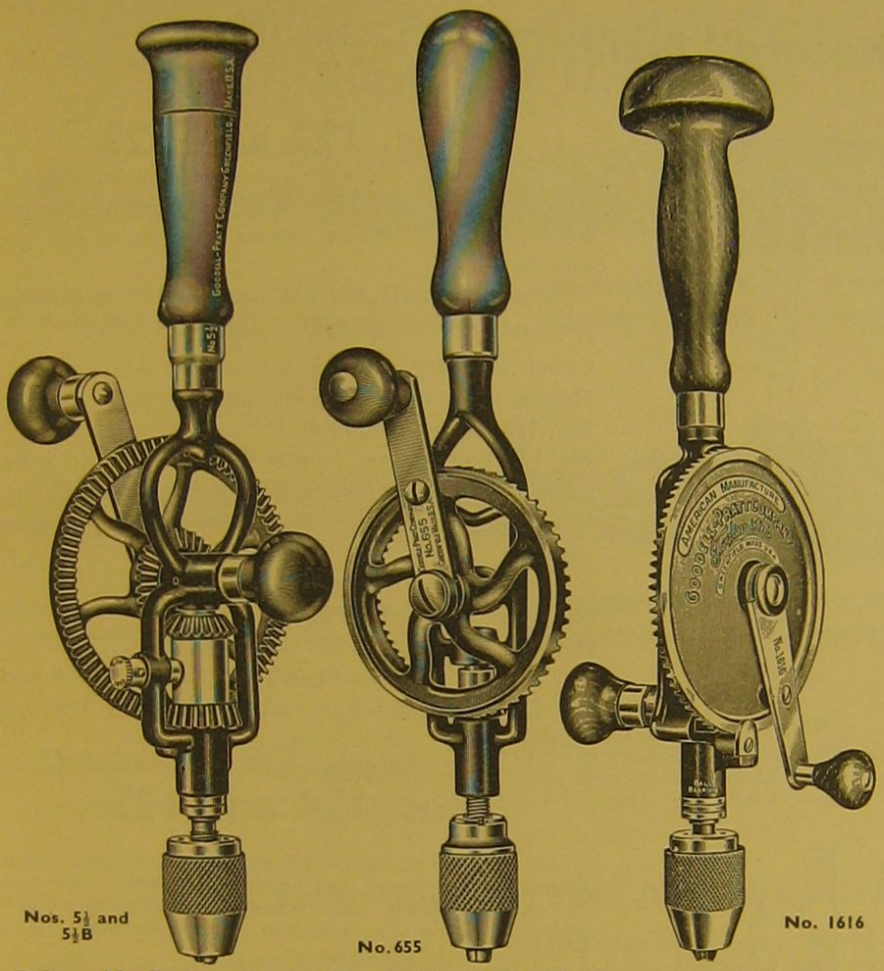


No. 1



No. 77 HAS DOUBLE PINIONS

HAND DRILLS



Millers Falls—Goodell-Pratt Hand Drills (Made in U.S.A.)

These Hand Drills are well and carefully made, each one being tested and thoroughly inspected before leaving the factory.

The frames are of malleable iron, heavily enamelled, and will stand very hard usage

All gears and pinions are turned from solid blanks on automatic machines, and each pinion is of steel. The gears are fitted to run very smoothly, and are held together by a hardened steel guard which renders slipping impossible.

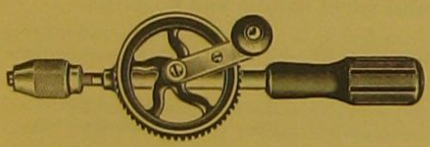
The chucks are remarkably accurate and of simple construction, being entirely of steel with hardened jaws.

Nos. 5½ and 5½B with **hollow-end handle with screw cap are fitted with two spindle speeds,** ratios of 3·8 to 1 and 1·3 to 1, which are obtained by turning the shifter knob.

No. 1616 is of unique design and construction, the frame being of aluminium. Spindle runs in ball bearings. Gear ratio is 4 to 1. **Solid handle.**

No. 655 is a light and cheap type drill in which the side handle is omitted. The gear ratio is 4·15 to 1. **Solid handle.**

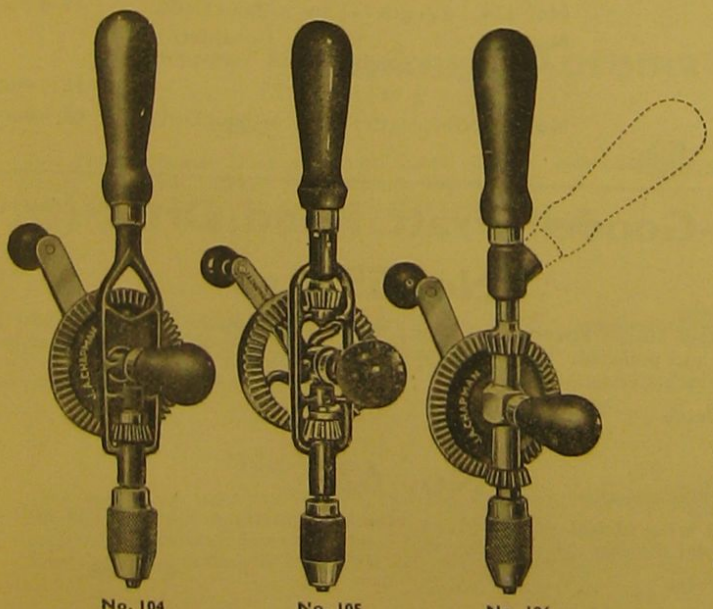
Prices, No. 5½. Capacity, 0 to ⅜ in., Weight, 2½ lbs. **20/10 each**
No. 1616. Capacity. 0 to ⅜ in., Weight, 2¼ lbs. **18/9 each**
No. 5½B. Capacity, 0 to ⅜ in., Weight, 2½ lbs. **20/10 each**
No. 655. Capacity, 0 to ¼ in., Weight, 1¼ lbs. **7/– each**



Mohawk-Shelburne Hand Drills No. 2500

These drills are well made having solid steel frames, cut gears, single speed and hardwood handles. Large gear finished red enamel. Fitted with 3 jaw chuck to hold round shanks 0 to ¼ inch. Length, 10⅝ ins. Weight, 1 lb.

No. 2500. With Solid Handle ... ... 4/2 each



Chapman Hand Drills (British Made) Nos. 104, 105 and 106

Nos. 104 and 105 have malleable iron frames, ball thrust bearings, teak handles. Steel parts are bright other parts are two coats black and red enamel, stoved.

Three jaw chuck, with hardened and ground jaws and concealed springs.

No. 104. Single Pinion , Chuck capacity 0 to ¼ inch
Price 5/6 each

No . 105 Double Pinion, Chuck capacity 0 to ¼ inch
Price 7/– each

No. 106 has **solid steel frame and hardened pinions.** All bright parts are chromium plated. Gears Cadmium plated. Black and red enamelled parts are stoved.

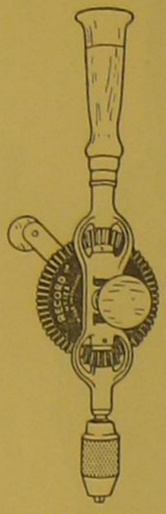
Handle can be used in two positions.

Three jaw chuck with hardened jaws and concealed springs.

No. 106. Double pinion—chuck capacity 0 to ¼ in.
Price ... 8/– each

"Record" Hand Drills (British Made)

No. 122



No. 123

Nos. 122 and 123

The frame is of malleable iron with single speed machine-cut gears and ball-thrust bearing, steel pinion and gear spindle.

Chucks are all steel of the 3-jaw type with hardened jaws and protected springs. Nickel-plated finish.

Chuck capacity, 0 to ¼ inch for round shanks.

Handles are of solid hardwood, rosewood finish.

No. 122 has solid handle.

No. 123 has hollow handle which will take seven popular sizes full length Jobbers Twist Drills.

Finish is dark blue, with red gear wheel, and nickel-plated parts.

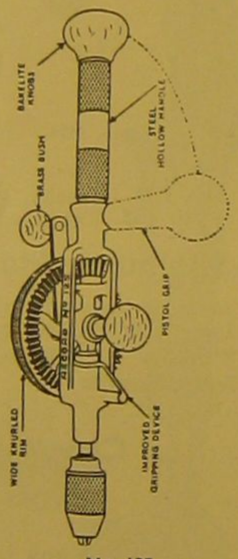
Sizes and Prices

No. 122. Length 12½ ins, without Drills ... **7/6 each**

No. 123. ,, 14¼ ins. **Complete with 7 Carbon Steel Twist Drills** **10/9 each**

No. 123ND Length 14¼ ins—without Drills **8/9 each**

No. 124



No. 125

Nos. 124 and 125

These Drills are of improved design and sound construction. **Gears,** single speed, are machine cut and fitted with ball-thrust bearing, steel pinions and spindles—double pinion including idler pinion to equalise bearings. Large gear has wide knurled rim.

3-Jaw Chuck is all steel with hardened jaws and protected springs. **Capacity, 0 to ¼ inch.**

No. 124 has solid wood handle and no drills.

The malleable-iron frame is fitted with improved gripping lug. Finish of tool is dark blue with red gear and nickel-plated parts. Knobs are bakelite.

No. 125 has a two-position hollow steel handle to hold seven popular sizes of full length Jobbers Twist Drills.

No. 124. Length 14¼ ins. without Drills ... **11/6 each**

No. 125. ,, 13¾ ins. **Complete with 7 Carbon Steel Twist Drills** $\frac{1}{16}$ **to ¼ inch** ... ... **15/– each**

No. 125ND Length 13¾ ins. without Drills **13/– each**

Millers Falls-Goodell Pratt Hand Drills (Made in U.S.A.)

No. 555

No. 555

This is a new single speed drill, fitted with double pinions. The large gear is machine cut and polished. Solid end handle is of hardwood. Three jaw chuck has capacity, 0-¼ inch.

Price ... ... **8/6 each**

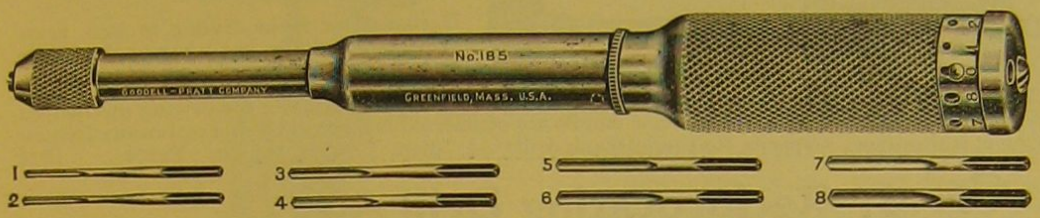
No. 62

A new drill with nickel-plated 3 jaw chuck, capacity 0-¼ inch. The tool is fitted with solid die cast driving wheel and solid hardwood handles.

Price ... ... **4/2 each.**

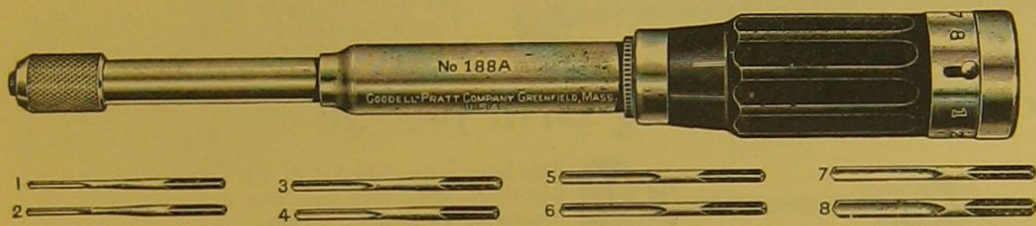
AUTOMATIC DRILLS

Millers Falls—Goodell Pratt Automatic Drills (Made in U.S.A.)



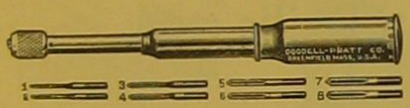
No. 185

The magazine handle is divided into separate numbered compartments from which the drills are released, one at a time, through a hole in the rotating cap. Chuck has two hardened steel jaws, is all metal, and nickel-plated. Length, 10 ins.
Price, with 8 drill points, $\frac{1}{16}$ to $\frac{11}{64}$ ins.
9/3 each



No. 188

With bakelite magazine handle containing 8 drill points in separate compartments, each numbered according to size. Exposed metal parts are nickel-plated. Length, $9\frac{5}{8}$ ins.
Price, with 8 drill points, $\frac{1}{16}$ to $\frac{11}{64}$ ins.
6/8 each

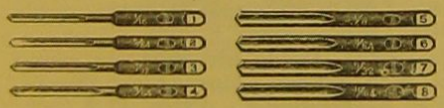


No. 03

Is an all-metal tool with magazine handle holding 8 drill points, each in an individual numbered compartment. Finish, dull nickel-plated. **Price** ... ... **8/– each**

Millers Falls—Goodell Pratt Automatic Drill, No. 81 (Made in U.S.A.)

The handle forms a magazine, and by turning the knurled nut on the lower end the handle is released and slides down the frame, so exposing all the points. Knurled nut securely locks the magazine, the metal partitions in which keep each drill point in place. **Price, with 8 drill points** ... ... **10/10 each**



Drill Points for Automatic Drills

These are new style drill points for automatic drills. Old style with parallel shanks can also be furnished.
Price (8 points) ... ... **2/10 per set**

"Yankee" Automatic Drills (Made in U.S.A.)

No. 40

This Drill is made from steel and brass, nickel-plated, and has ratchet movement. Eight drill points, from $\frac{1}{16}$ to $\frac{11}{64}$ inch, are supplied in magazine. Length overall, including drill point, $10\frac{3}{4}$ inches. **Price** ... **141/8 per doz.**

No. 41

Made of steel and brass, nickel-plated. Eight drills, $\frac{1}{16}$ to $\frac{11}{64}$ inch, are contained in the magazine. During the return movement of handle the drill point revolves backward to clear chips. Length overall, including drill point, $11\frac{3}{8}$ ins.
Price ... **126/8 per doz.**

No. 42

This tool is the same as No. 41, but has wooden handle, and no magazine for drills. Drills are supplied in wooden box.
Length overall, including drill point, $11\frac{3}{8}$ inches. **Price** ... **100/– per doz.**

K

RECIPROCATING, CHAIN DRILLS & BENCH DRILLING MACHINES

Millers Falls—Goodell Pratt Reciprocating Drills (Made in U.S.A.)

No. 101

Designed for rapid drilling in iron, brass or wood, and for use where a bit brace or breast drill cannot be used.

The travelling handle affords a good grip, and contains the flanges and bronze nuts constituting the driving mechanism which causes chuck to revolve continuously to the right. Head and handle are of selected hardwood, with a mahogany lacquer finish. Ball bearing head. Chuck is three jaw. Capacity for round shank drills 0-¼" diam. Length, 16½ ins. **Price... 10/6**

COMET Reciprocating Drill (Foreign)

This drill is similar in construction to the Goodell No. 101 illustrated above but is not quite so finely finished.
Chuck capacity 0-¼ inch.

A reasonably priced tool. **Price each 7/6**

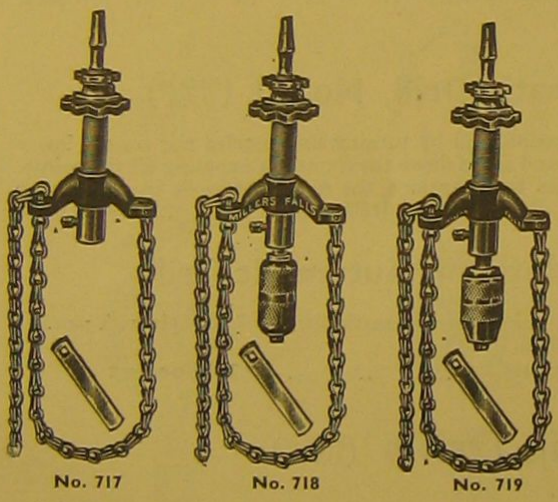
"Yankee" Reciprocating Drill No. 50 (Made in U.S.A.)

The head is furnished with ball bearings. The chuck has three jaws, and will take drills up to ⅛ inch diameter. Length, 15 inches.

Price ... ... 191/8 per doz.

Millers Falls—Goodell Pratt Chain Drills (Made in U.S.A.)

Nos. 717, 718, and 719



No. 717 No. 718 No. 719

The Drill is automatically fed into the work by an adjustable friction feed, the speed being automatically regulated by the resistance encountered. This reduces breakage of drills to a minimum.

Hand feed can be used when desired.
The ball thrust bearing, which is fitted to these drills, results in ease of operation and good wearing qualities.

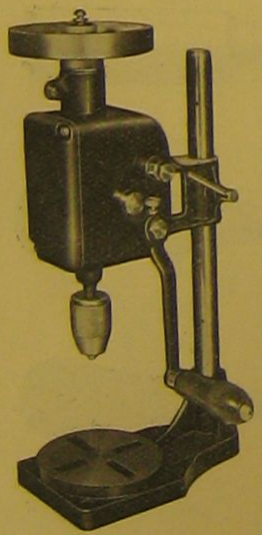
Sizes and Prices

No. 717, fitted with socket hole. **Holds flattened round shanks up to ½ inch diameter.** Length of spindle 8½ inches, weight 3½ lbs. **Price, 14/6 each.**

No. 718, with two-jaw chuck. **Holds bit stock or round shank drills from ⅛ to ½ inch and No. 1 Morse taper shanks.** Length overall 11½ inches, weight 4½ lbs. **Price, 21/8 each.**

No. 719, with three-jaw chuck, **for round shank drills 0 to ½ inch.** Length overall 11¾ inches, weight 4½ lbs. **Price, 23/- each.**

Four-foot length of stout chain is furnished with each tool.



COMET Bench Drilling Machine No. 395 (Foreign)

High speed Bench Drilling Machine, is of first class quality and finish, and is an extremely useful addition to any workshop or garage.

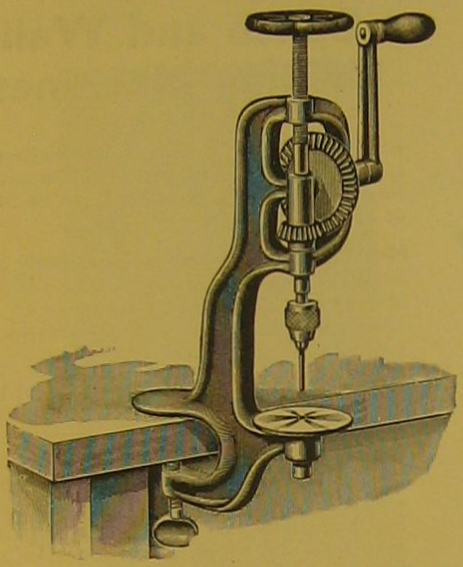
Fitted with two-speed automatic feed, and ball thrust bearings.

The steel cut gears are completely enclosed.

Capacity ½ inch. Height 20 inches. Centre of spindle to pillar 4⅜ inches. Maximum height from chuck to slotted table 9 inches. Finished black, bright and red. Weight 20 lbs.

Price ... ... 31/6 each

Millers Falls—Goodell Pratt Bench Drills (Made in U.S.A.)



No. 8

Capacity 0 to ¼ inch.

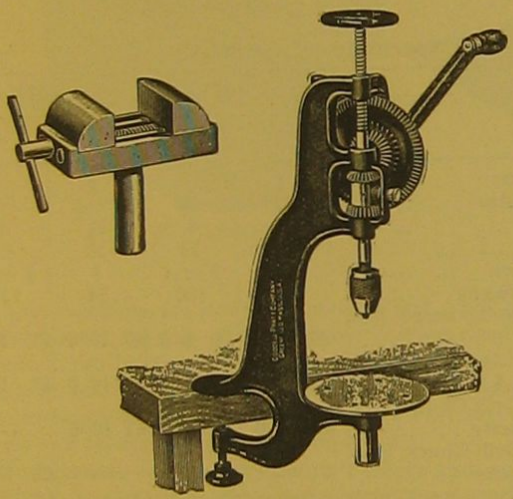
This is a substantial machine, with solid iron frame, cut gears, steel feed screw, and adjustable table, all well made and nicely fitted.

It is furnished complete with a three-jaw chuck, capacity 0 to ¼ inch, and eight fluted drills, 1/16 to 11/64.

Height from table to feed wheel is 13 inches; net weight 7½ lbs.

Price, with Eight Fluted Drills ... **£1 6 3 each**

,, of Vice ... ... **12/– extra**



No. 9

Capacity 0 to ⅜ inch

This Drill differs in construction from No. 8 only in that it is geared for two different speeds.

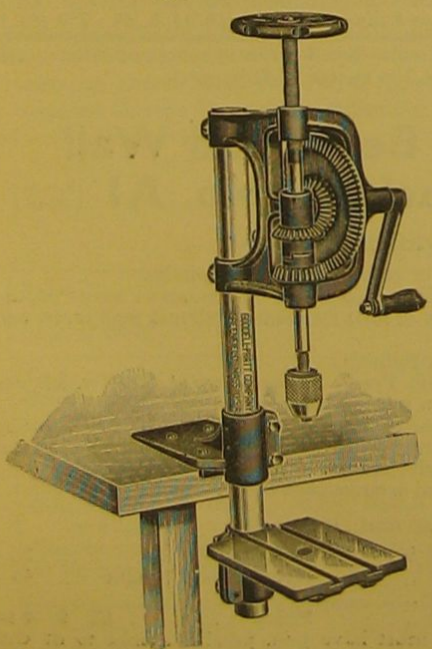
It is furnished complete with a three-jaw chuck capacity 0 to ⅜ inch, and eight fluted drills, 1/16 to 11/64.

Height from table to feed wheel is 18 inches; net weight 13½ lbs.

This Drill can be furnished with special Vice for use in place of the table for holding the work. Jaws open 2 inches, and operate on right and left-hand screw.

Price, with Eight Fluted Drills ... **£2 3 9 each**

,, of Vice ... ... **13/4 extra**



No. 10

Capacity 0 to ½ inch

The upright shaft is polished steel tube 1½ inches diameter by 24 inches long, and all the working parts are clamped to it. Gears are cut from solid blanks, and run smoothly.

Each Drill is furnished with a three-jaw chuck, capacity 0 to ½ inch.

Table is milled and slotted, is adjustable up and down, right or left, or can be entirely removed, allowing work to be blocked up from the floor, if desired.

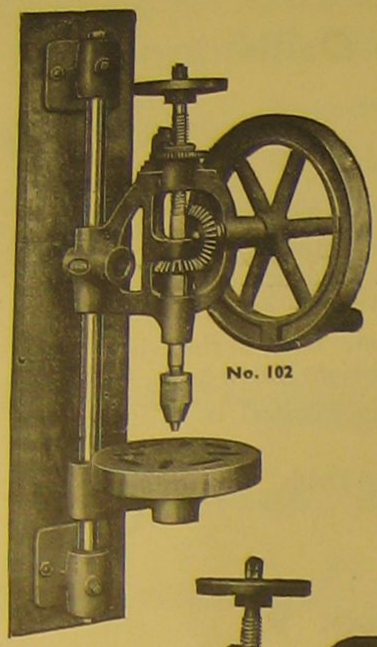
Size of table, 6 × 6½ inches.

The Drill is a thoroughly well-made and practical machine, and excessive weight has been obviated by using a tubular shaft.

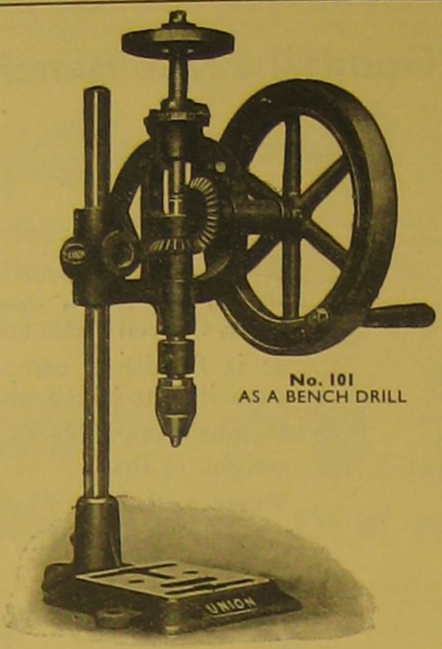
It has two speeds, changed by throwing cam attached to shifter knob.

Price, with Chuck ... ... **£3 10 6 each**

,, of Vice ... ... **15/8 extra**



No. 102



No. 101
AS A BENCH DRILL

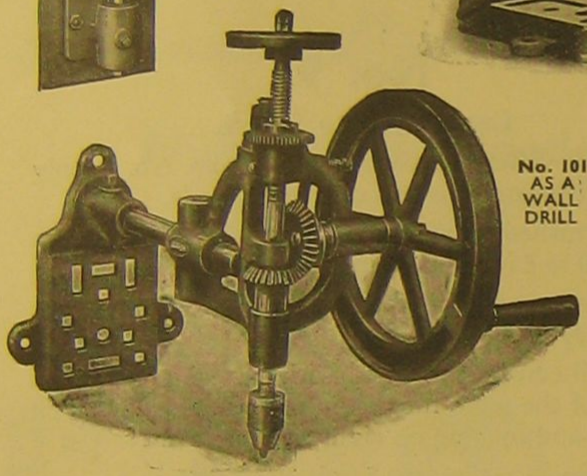
"Union" Bench and Wall Drilling Machines

(British Made)

All machines have ball-thrust washers to spindle, machine-cut gears, and automatic feed. Fast and loose pulleys can be fitted at extra cost.

No. 101 is a portable machine, easily convertible from a bench to wall drill, as shown in illustration. It is made in two sizes and will drill up to the thickness and size of hole specified.

No. 102 shows an exceedingly useful Post Drill—very handy where bench space is limited. Head and table brackets rise and fall on the pillar and are quickly clamped in position. Table swivels in brackets and can be easily removed when necessary for large articles to be drilled. These machines are supplied complete on varnished hardwood planks.

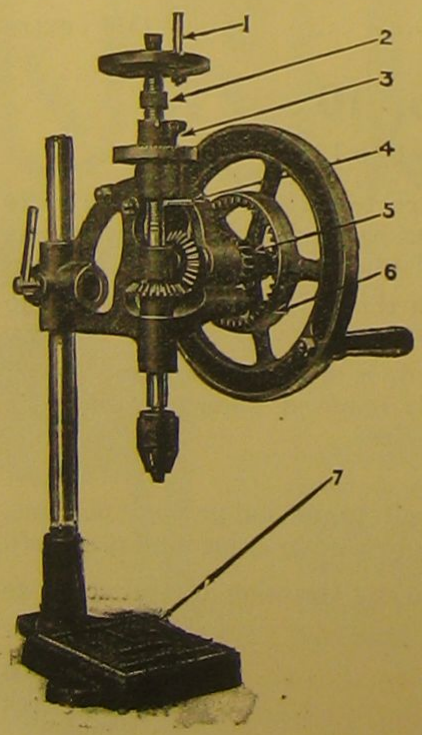


No. 101
AS A
WALL
DRILL

Specification and Prices

Figure No.	101		102	
Size No.	1	2	3	4
Drills holes up to ins.	⅝	1	⅝	1
*Admits in diameter ,,	12	16	11½	17½
Spindle Feed ,,	2½	4	2½	4
Height of Pillar ,,	23	33	30	42
Capacity of Chuck ,,	½	¾ or 1	½	¾ or 1
Approximate Weight lbs.	40	100	54	136
Price, with Spindle bored ½-in. hole	£2 0 0	£4 5 0	£2 10 0	£5 5 0
,, with Spindle bored No. 1 M.T.	£2 0 0	£4 5 0	£2 10 0	£5 5 0
,, with Drill Chuck, ½-in. capacity	£2 0 0	—	£2 10 0	—
,, with Drill Chuck, ¾-in. capacity	—	£5 5 0	—	£6 5 0
,, 1-in. Two Jaw Chuck	—	£5 15 0	—	£6 15 0
Extra for Fast and Loose Pulleys	£0 7 0	£0 11 0	£0 7 0	£0 11 0

*Arranged as Wall Drill:—No. 1 Drills in centre of 36-in. circle; No. 2 in centre of 42-in. circle.



"Union" Bench and Wall Drilling Machines No. A1 (British Made)

With Two Speeds

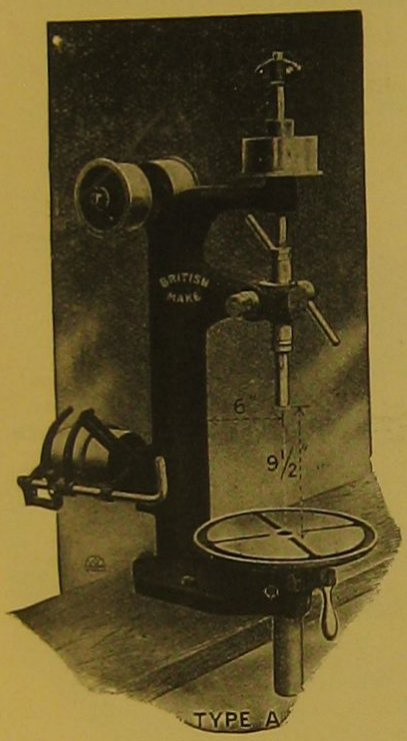
1. Handle for quick advance or return of drilling spindle.
2. Knurled Stop Collar with fine adjustment. When not in use as depth stop the collar prevents breakage of feed mechanism, should feed screw run too low.
3. Automatic Feed to Drilling Spindle.
4. Lever controlling Automatic Feed. Three rates of feed, which can be changed while machine is in motion, are obtainable.
5. Two-Speed Gear permits use of large or small drills. In direct low-speed drive, as illustrated, for large drills. By lowering hand wheel gear (6)
6. engages with pinion (5) to give increased speed for small drills.
7. Base provided with improved arrangement of slots for bolts.

Specification and Price

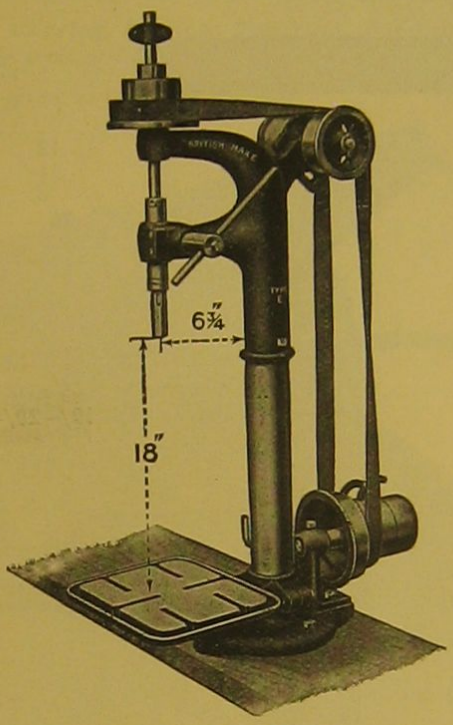
*Drills holes up to, diam ...	⅝ ins.	Height of Pillar ...	23 ins.
Admits work, diam. ...	12 ,,	Approximate Weight ...	43 lbs.
Chuck Capacity	½ ,,		
Length of Feed	2½ ,,	**Price**	**£2 5 0 each**

*Drills larger than ½ in. diam. must have ½-in. parallel shanks to fit chuck.

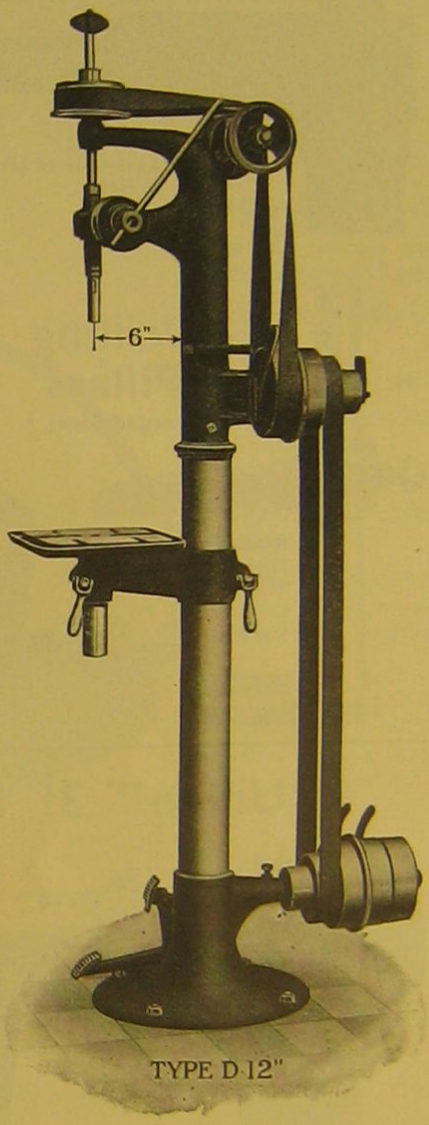
"Superior" Bench and Floor Drills (British Made)



TYPE A BENCH



TYPE E BENCH



TYPE D PILLAR

These machines are designed for light and rapid drilling, and are well adapted for the use of electricians, mathematical instrument makers, and similar light manufacturing. The spindle is fitted with ball thrust bearing and No. 1 Morse taper; No. 2 Morse taper, or drill chuck can be arranged at extra cost. An adjustable stop on the spindle limits the feed and ensures holes of uniform depth.

Work tables are designed with T-slots and water groove arranged so that the water passes down the stem. Round tables are fitted to types A and C, and rectangular tables to types D and E. A tilting rectangular table can be fitted to type E machines when required.

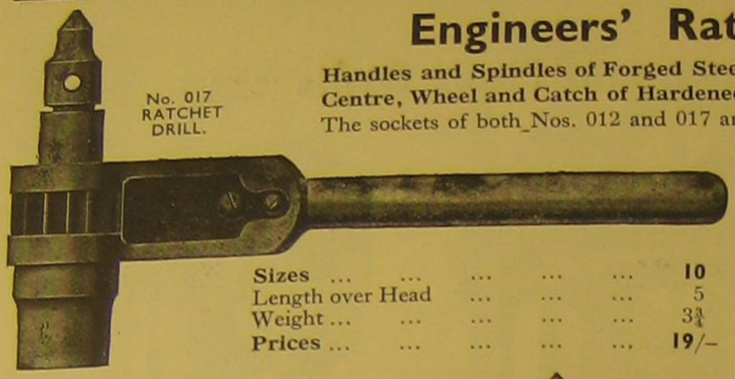
A centring chuck with reversible jaws with 7½ ins. capacity can be mounted on type D machines, affording rapid and accurate centring and drilling in a vertical position.

Dimensions

Type	A	E	E	C	D
Size of Drill	½-inch	½-inch	½-inch	⅝-inch	⅝-inch
Drills to centre of ins.	12	13½	13½	12	12
Spindle diameter "	11/16	11/16	11/16	11/16	11/16
" feed "	3½	3½	3½	3½	3½
" taper	No. 1 Morse	No. 1 Morse	No. 1 Morse	No. 1 Morse	No. 1 Morse
Maximum distance under drill ins.	9½	12	18	9½	34
Table size "	9½ diam.	10×12	10×12	10½ diam.	10×12
Countershaft F. and L. pulley diameter and face ins.	4×1⅝	4×1⅝	4×1⅝	6×1¾	6×1¾
Countershaft speed r.p.m.	400	400	400	250	250
Weight of machine lbs.	76	90	96	110*	194
" " pillar "	60	65	65	60	—

*Includes countershaft

Engineers' Ratchet Drills (British Made)



Handles and Spindles of Forged Steel.
Centre, Wheel and Catch of Hardened Steel.
The sockets of both Nos. 012 and 017 are 1¾ inches deep, square taper ¾ to ½ inch.

No. 017

Sizes	**10**	**12**	**14**	**16**	**18** ins.
Length over Head	5	5½	6	6	6½ ,,
Weight	3¾	5	6	7	9 lbs.
Prices	**19/–**	**20/–**	**23/4**	**26/8**	**30/– each**

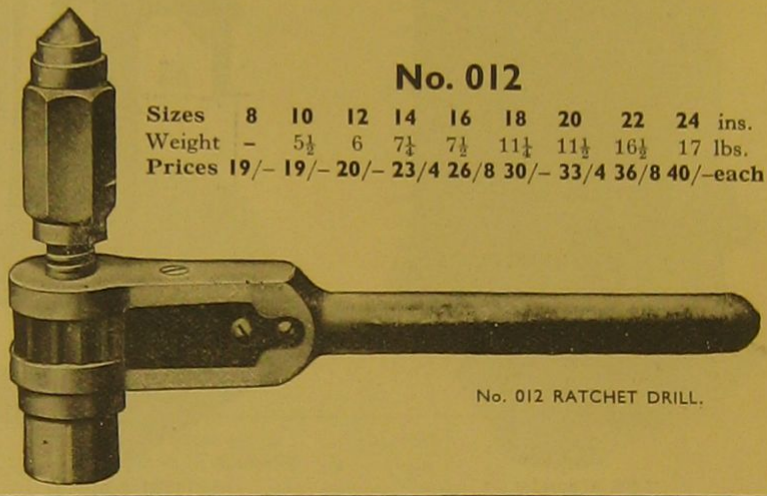
Drilling Pillars

Forged Steel

Size No.	**1**	**2**
Diameter of Pillar	1½	2 ins.
Total Height	21	32 ,,
Prices ...	**35/–**	**70/– each**

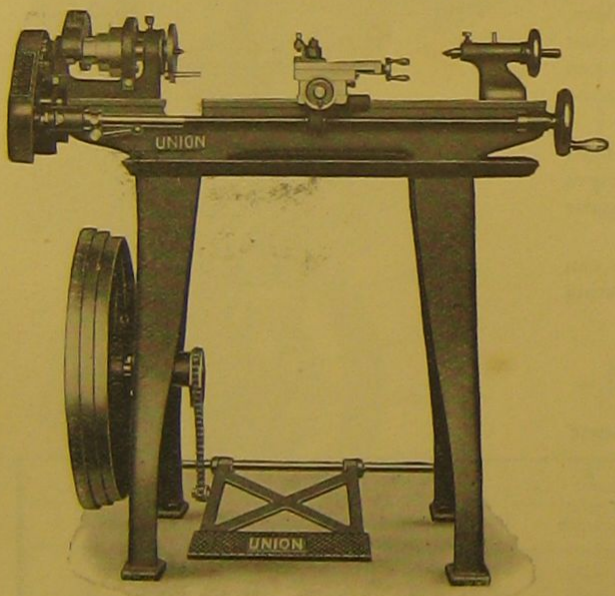
No. 012

Sizes	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24** ins.
Weight	–	5½	6	7¼	7½	11¼	11½	16½	17 lbs.
Prices	**19/–**	**19/–**	**20/–**	**23/4**	**26/8**	**30/–**	**33/4**	**36/8**	**40/–each**



No. 012 RATCHET DRILL.

"Union" 3½ inch Screw Cutting Lathe (British Made)



These handy machines, suitable for use in garage workshops, etc. fill the requirements for a well-built lathe at a moderate price.

They are equipped with double geared headstock, hollow spindle running on ball bearings and machine cut gears and alternatively to the treadle type shown can be supplied for countershaft drive or direct motor drive.

Equipment includes: 7 in. Face-plate, 5 in. catch plate, 3 centres, ten change wheels, index plate, spanners and driving belt.

Height of centres	3½ ins.
Diameter of Work in gap	10½ ,,
Length of bed	36 ,,
Takes between centres	22 ,,
Diam. of hole through Spindle	⅜ ,,

Prices

Treadle Driven Lathe, as illustrated **£17 10 0**
Motor Driven Lathe for 3ph. with Push Button Starter **£26 0 0**

Extras that can be furnished:

Countershaft in addition to Treadle	**£1 10 0**
Travelling Steady	**£0 12 6**
Stationary Steady	**£1 0 0**
63-Tooth Change Wheel	**£0 5 0**

Lathe with Countershaft drive only £16 10 0
Bench Lathe with Countershaft ... £15 10 0

Saw table to fit in Hand Rest, mandrel, and 6-in. diameter Saw for Wood	**£1 15 0**
Extra per foot Length of Bed	**£2 10 0**

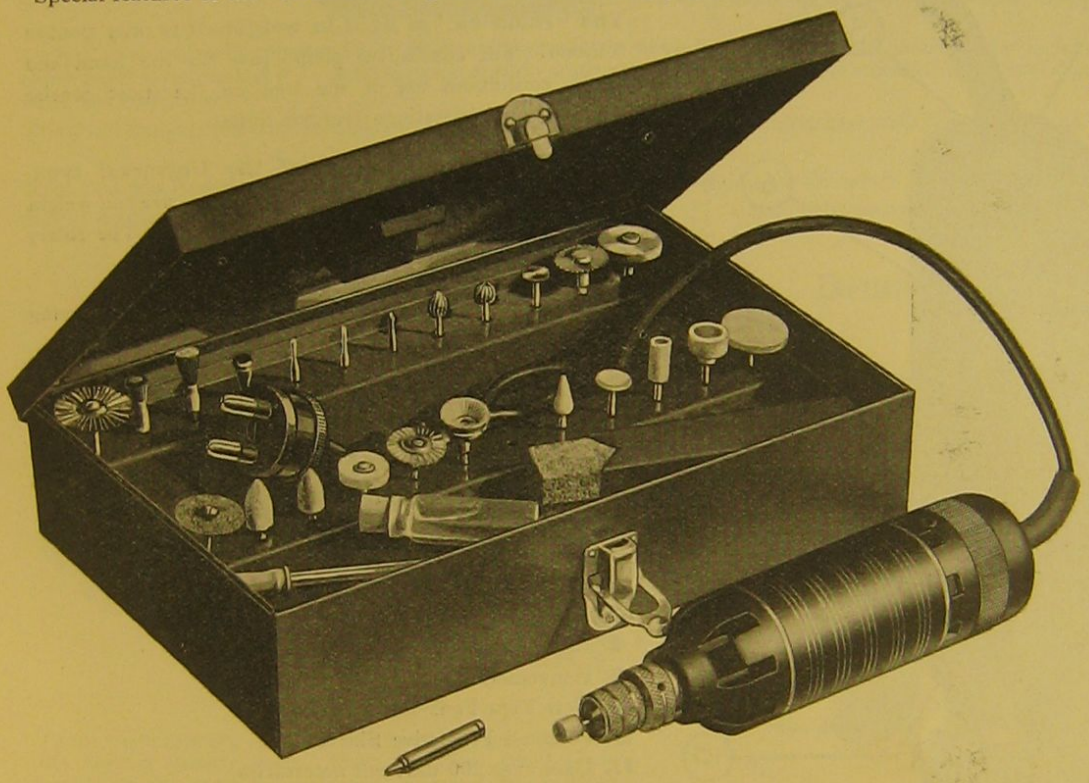
Other extras can be supplied. Prices on application.

Churchill "Hand-ee" Electric Hand Tool (Made in U.S.A.)

This little highly efficient, easily handled electric tool has hundreds of applications and literally lives up to its name—"Hand-ee"

For Grinding, Drilling, Routing, Carving, Sawing, Polishing, Sanding, Engraving and Cutting, it is extraordinarily versatile, and with its various accessories can be effectively used on unrestricted materials.

Special features of the "Hand-ee" are given on the following page.



Specification

Length overall, including chuck, 6 ins.

Diameter overall—1⅝ ins.

Speed 25,000 r.p.m.

Motor, Universal for A.C. or D.C.

Brushes, replaceable, special graphite composition.

Bearings, precision ground, grease-sealed ball bearing type.

Cord, 6 ft. reinforced rubber - covered cable, with special soft rubber attachment plug.

Ultra De Luxe Model

Only the most popular accessories from the complete range are included in the Ultra De Luxe Assortment—everything that is needed for grinding, drilling, polishing, sanding, sawing, carving and engraving.

The whole outfit is packed in a substantial steel case, finished green enamel and perfect for carrying and storage. The contents are conveniently arranged for accessibility.

The Ultra de Luxe Set includes:—

Standard "Hand-ee" Grinder.

Steel Carrying Case.

No. 29 Rubber Polishing Wheel with No. 16 mandrel.

No. 128 Saw with No. 16 Mandrel.

No. 20 Slitting Saw.

1 each Nos. 4935 and 4925 Steel Cutters

1 each Nos. 1, 5 and 10 Drills.

No. 18 Push Pin Mandrel.

No. 14S Steel Wire Cavity Brush.

No. 14 Bristle Brush.

No. 15 Wire Scratch Brush.

No. 25 Rubber Disc with No. 17 Mandrel.

No. 31 Felt Polishing Point with No. 21 Mandrel.

No. 30 Rubber Polishing Point with No. 21 Mandrel.

No. 13 Felt Polishing Wheel.

No. 12 Cup Cleaning Brush.

No. 11 Disc Cleaning Brush.

1 each Mounted Grinding Wheels, Nos. 4B53, 4W160, 4B73, 4W163 (countersunk), 4W211, 4W183 (countersunk).

No. 204 Dressing Stone and 12 assorted Sandpaper Discs.

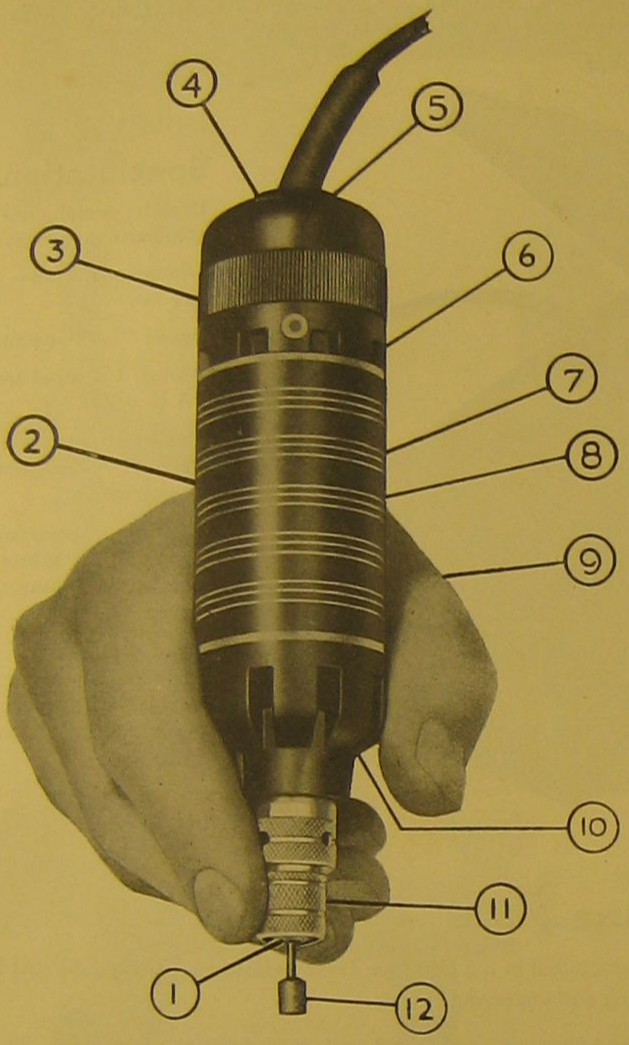
Price.

Ultra De Luxe Model, Complete in Steel Case, with Accessories, as above. For 220/230 volts. **£7 5 0**

For operation on electric supplies between 110 and 220 volts we can furnish a suitable resistance, at extra cost.

For grinding wheels and other accessories for use with "Hand-ee" Electric Hand Tools, see following pages.

Churchill "Hand-ee" Electric Hand Tool (Made in U.S.A.)



The "Hand-ee" is light in weight—it is only twelve ounces. The convenient shape just fits the hand and allows continuous use of the tool on the most precise and exacting operations without fatigue.

The "Handee" motor is of the Universal type, operating on either A.C. or D.C. and for the size and weight of the tool is exceedingly powerful and robust. The rotary type switch gives perfect one hand control.

Accessories are quickly changed in the easy acting interchangeable collet chuck.

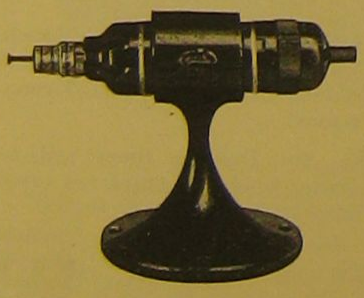
Outstanding "Handee" Features—

1. Quick-acting Chuck.
2. Aluminium alloy Housing.
3. Patented Rotary Switch.
4. Shock-proof bakelite construction.
5. Patented Lead in.
6. Streamline Design.
7. No obstructions.
8. Light weight, 12 ozs.
9. Convenient shape.
10. New Type Fan.
11. Patented Protective Sleeve.
12. Uses over 200 different accessories.

The De Luxe Model is similar to the Ultra De Luxe Model shown on previous page and is supplied when required, packed in cardboard case and with 3 each mounted wheels and steel cutters only. **Price £5 10 0**

For operation on electric supplies between 110 and 220 volts we can supply a suitable resistance, at extra cost.

Accessories for "Hand-ee" Electric Hand Tools



Bench Holder

This holder which can be screwed to the bench rigidly holds the "Hand-ee" for high speed polishing, carving etc., and permits freedom of both hands. The "Hand-ee" can be removed at will from the holder.

Price, for either model £1 4 3 each

Foot Speed Control

Controls speed of the tools in a complete range between 300 and 25,000 r.p.m.

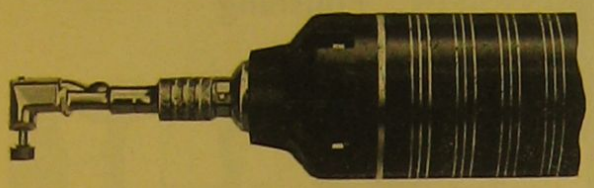
It allows full freedom of hands for guiding and is recommended for delicate and accurate work.

Price ... £2 8 6

For grinding wheels and other accessories for use with "Hand-ee" Electric Hand Tools, see following pages.

ACCESSORIES FOR ELECTRIC HAND TOOLS

Churchill "Hand-ee" Electric Hand Tool (Made in U.S.A.)



Right Angle Head for De-Luxe Model "Hand-ee"

This attachment is extremely useful for working in close quarters and in difficult to-reach places. The right angle handpiece and necessary bushings are interchangeable with the regular chuck.

Only ¼" free room is required for the operation of this device. The Handpiece measures 2½" in length. The right angle chuck itself measures but ⅜". A wide range of right angle accessories are available mounted on special short mandrels required with this equipment.

The Foot Speed Control, on delicate work is recommended for use in conjunction with this attachment.

Price

Right Angle Bushings and Handpiece (both required for converting the Grinder) **£4 7 3**

Right Angle Bushings only ... ... **£1 18 9** **Handpieces only** **£2 8 6**

Set of Twelve Right Angle Accessories ... ... **£ 1 12 3**

Sanding Discs

For use on metal or wood, leaving a fine finish.

The discs are assorted, coarse, medium and fine and are for use with No. 18 Mandrel.

All packed in cardboard boxes.

Price

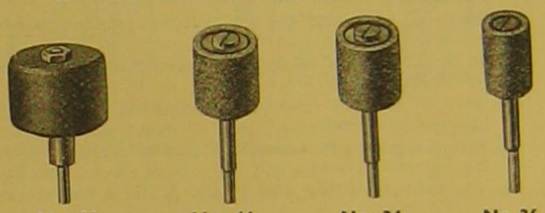
No. 22. 525 Assorted discs ... **6/3**

No. 46. 100 cloth back, coarse discs, ⅞" **2/1**

No. 47. 100 cloth back, medium discs, ⅞" **2/1**

No. 48. 100 cloth back, fine discs, ⅞" **2/1**

Drum Sanders and Bands



No. 23 No. 44 No. 34 No. 36

The Bands are of lapless construction and can be run in either direction. Edges will not ravel.

No. 23. ¾×¾" **Drum** mounted ⅜" shank only ... ... **4/2 each**

No. 44. ½×½" **Drum** mounted ⅛" shank only ... ... **3/2** ,,

No. 34. ⅜×½" **Drum** mounted ⅜" shank only ... ... **3/2** ,,

No. 36. ¼×½" **Drum** mounted ⅜" shank only ... ... **3/2** ,,

Extra Bands

No. 24. ¾" **bands** only for No. 23 ... **1/3 doz.**

No. 45. ½" **bands** only for No. 44 ... **1/3** ,,

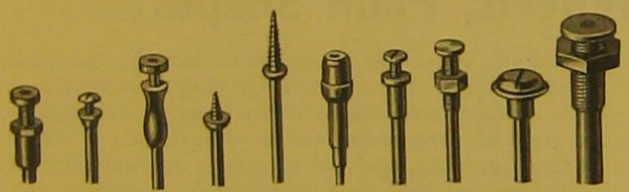
No. 35. ⅜" **bands** only for No. 34 ... **1/3** ,,

No. 37. ¼" **bands** only for No. 36 ... **1/3** ,,

In ordering state whether coarse, medium or fine.

Mandrels

These mandrels are made to the most precise limits of the highest quality steel. They are ideal for correctly mounting the various accessories designed for use with the Hand-ees.



Nos. 16 17 18 21 3013 38 39 40 3014 3015

No. 16. Mandrel ⅛" hole for mounting Nos. 26, 27, 28 and 29, ⅜" shank only ... **1/8 each**

No. 17. Screw mandrel ⅛" hole for mounting Nos. 25, 3018 and 3019, ⅜" shank only ... ... **8d.** ,,

No. 18. Push pin mandrel for sanding discs Nos. 22, 46, 47 and 48, ⅜" shank only ... **3/2** ,,

No. 21. Special screw shoulder mandrel for mounting points Nos. 30 and 31, ⅜" shank only ... ... **1/11** ,,

No. 3013. Long screw shoulder mandrel for mounting point No. 41, ⅜" shank only ... ... **2/6** ,,

No. 38. Spindle Chuck adaptable for either ⅛" or ⅜" capacity chuck, **will grip even the finest hair line drills** ... ... **6/3** ,,

No. 39. ⅛" dia. **Heavy screw mandrel** for Nos. 29, 33 and 49, ⅛" shank only ... **1/8** ,,

No. 40. ⅛" dia. **Nut mandrel,** ⅛" shank only **1/8** ,,

No. 3014. Special saw mandrel, screw top ⅛" shank for saws Nos. 3016 and 3017 **4/2** ,,

Brushes

These brushes work equally well in reaching hard to get at places, cleaning out cavities, removing rust and for a host of other applications. Each is specially designed for use on Hand-ee equipment.

Nos. 11 12 14 14-B 14-S 15 49

No. 11. Disc cleaning brush, ⅜" shank only ... ... **10d. each**

No. 12. Cup cleaning brush, ⅜" shank only ... ... **10d.** ,,

No. 14. Bristle-type brush for deep cavity work, ⅜" shank only ... ... **10d.** ,,

No. 14-B. Bronze wire cavity brush also for ferrelling, ⅜" shank only ... ... **1/8** ,,

No. 14-S. Steel wire cavity brush, ⅜" shank ... ... **1/8** ,,

No. 15. 1" dia. **Wire Scratch Brush,** ⅜" shank only ... ... **2/1** ,,

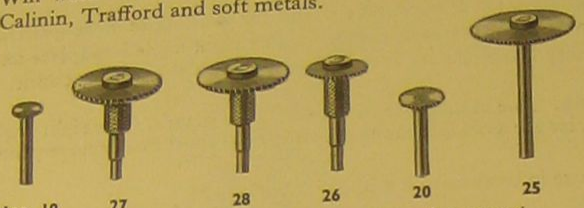
No. 49. Extra stiff wire brush only. Use mandrel No. 39 ... ... **4/2** ,,

ACCESSORIES FOR ELECTRIC HAND TOOLS

Accessories for *Churchill* "Hand-ee" Electric Hand Tool (Made in U.S.A.)

Saws

A wide variety of saws for undercutting, slitting, purfling. Will work with any model Hand-ee on Wood, Bakelite, Calinin, Trafford and soft metals.



Nos. 19 27 28 26 20 25

No. 19. Slitting or undercutting saw, permanently mounted $\frac{3}{32}$" shank only, each 3/2

No. 20. $\frac{3}{4}$" dia. **Slitting saw,** permanently mounted $\frac{3}{32}$" shank only, each 3/2

No. 26. $\frac{1}{2}$" dia. **Saw,** ·023" thick, $\frac{1}{8}$" hole, saw only, (use mandrel No. 16), each 2/6

No. 27. $\frac{3}{4}$" dia. **Saw,** ·023" thick, $\frac{1}{8}$" hole, saw only (use mandrel No. 16) each 3/2

No. 28. $\frac{3}{4}$" dia. **Saw,** ·032" thick, $\frac{1}{8}$" hole, saw only (use mandrel No. 16) each 3/2

No. 3016. $1\frac{1}{2}$" dia. ·023" thick (use mandrel No. 3014) saw only (not illustrated) each 5/3

No. 3017. 2" dia. ·032" thick (use mandrel No. 3014) saw only (not illustrated) each 6/3

No. 3018. Extremely thin saw, ·005" thick, $\frac{7}{8}$" dia. (use mandrel No. 17) saw only, each 2/1

No. 25. Rubber cutting disc $\frac{7}{8}$" dia. $\frac{3}{32}$" thick (use mandrel No. 17) dozen 1/6

No. 3019. $1\frac{1}{2}$" dia. **Rubber cutting disc** $\frac{1}{32}$" thick (use mandrel No. 17) not illustrated, dozen 2/11

Polishing

Nos. 42 29 30 41 33 13 31

Soft rubber polishing wheels and points are especially adapted for working with metals of all kinds.

They have sufficient grinding action to remove marks and scratches and are impregnated with a special type of polishing compound which leaves a brilliant finish. Felt polishing wheels can be used with regular compounds such as Tripoli, Rouge, etc.

No. 42. Special eraser and rubber polishing tip holder with one eraser, $\frac{3}{32}$" shank only, ... each 6/3
Extra rubber erasers No. 43, ... dozen 1/8

No. 29. Soft Rubber Polishing Wheel $\frac{1}{4} \times \frac{1}{8}$", gives exceptional finish to all types of metal. Wheel only. (Use mandrel No. 16, 39, or 40) each ... ... 10d.

No. 30. Rubber polishing tip (use mandrel No. 21), each ... 8d.

No. 41. Long soft rubber polishing tip, 1" (use mandrel No. 3013), Tip only, each 8d

Particulars of complete range of Soft Rubber Polishing Wheels sent on request.

Felt Polishing Wheels

No. 33. Felt wheel $1 \times \frac{1}{8}$" (Use mandrel No. 16, 39 or 40) wheel only, each ... ... 10d.

No. 13. $\frac{1}{2}$" dia. polishing wheel permanently mounted, $\frac{3}{32}$" mandrel, each ... ... 10d.

No. 31. Small polishing tip (use mandrel No. 21), each... ... 10d.

Extra Parts for "Hand-ee" Electric Tools

No. 3021. Finger-type rheostat for varying speeds Standard Model Hand-ee, each 14/7

No. 3022. Finger-type rheostat for varying speeds. De Luxe Model Hand-ee, each 14/7

No. 32. Reducing collet ($\frac{1}{8}$" to $\frac{3}{32}$") each 1/1
This collet is for use with $\frac{3}{32}$" shank accessories adapting them to fit $\frac{1}{8}$" chuck, any model Hand-ee.

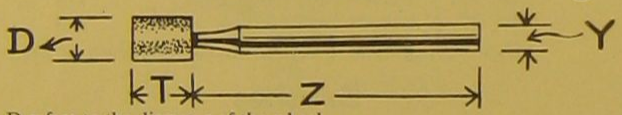
No. 3023. $\frac{1}{32}$" **Spring Collet** (for De Luxe Model Hand-ee only) jaws close down completely gripping even hair line drills, each 3/2

No. 3024. $\frac{3}{32}$" **Spring collet** (for De Luxe Model Hand-ee only), each 3/2

No. 3025. $\frac{1}{8}$" **Spring collet** (for De Luxe Model Hand-ee only), each 3/2

No. 38. Spindle chuck for De Luxe Hand-ee, for mounting accessories with shank smaller than $\frac{3}{32}$" dia. down to 0", each 6/3

Mounted Grinding Wheels, Plain Shapes



D refers to the diameter of the wheel.
T refers to the thickness of the wheel.
Z refers to the length of the mandrel extending from the wheel which in all cases is $1\frac{1}{4}$" unless $2\frac{3}{8}$" is specified.
Y refers to the diameter of the mandrel which is either $\frac{3}{32}$" or $\frac{1}{8}$".

Practically every type of material can now be successfully ground with the Hand-ee Grinders and Mounted Wheels. The varied shapes and sizes of these wheels make it possible to grind any irregular as well as plain surface, to remove material in blind holes and corners to do many jobs that heretofore could not be accomplished by grinding.

Diam. D In.	Thickness T In.	Diameter, Mandrel $\frac{3}{32}$ in.	Diameter, Mandrel $\frac{1}{8}$ in.	Price Each	Diam. D In.	Thickness T In.	Diameter, Mandrel $\frac{3}{32}$ in.	Diameter, Mandrel $\frac{1}{8}$ in.	Price Each
$\frac{3}{32}$	$\frac{3}{32}$	4W141	5W141	1/8	$\frac{1}{2}$	$\frac{1}{4}$	4W183	5W183	1/8
$\frac{1}{8}$	$\frac{1}{8}$	4W143	5W143	1/8	$\frac{1}{2}$	$\frac{1}{2}$	4W185	5W185	2/1
$\frac{1}{4}$	$\frac{1}{4}$	4W144	5W144	1/8	$\frac{1}{2}$	$\frac{3}{4}$	4W191	5W191	1/8
$\frac{3}{16}$	$\frac{1}{4}$	4W152	5W152	1/8	$\frac{1}{2}$	$\frac{1}{8}$	4W192	5W192	1/8
$\frac{1}{4}$	$\frac{1}{4}$	4W160	5W160	1/8	$\frac{3}{4}$	$\frac{1}{4}$	4W200	5W200	1/8
$\frac{1}{4}$	$\frac{3}{16}$	4W162	5W162	2/1	$\frac{3}{4}$	$\frac{1}{4}$	4W201	5W201	1/8
$\frac{1}{4}$	$\frac{1}{8}$	4W163	5W163	2/1	$\frac{3}{4}$	$\frac{3}{4}$		5W204	2/6
$\frac{3}{8}$	$\frac{1}{4}$	4W174	5W174	1/8	$\frac{3}{4}$	$\frac{1}{8}$	4W211	5W211	1/8
$\frac{3}{8}$	$\frac{3}{8}$	4W175	5W175	2/1	$\frac{7}{8}$	$\frac{1}{4}$	4W212	5W212	1/8
$\frac{3}{8}$	$\frac{1}{2}$	4W176	5W176	2/1	1	$\frac{1}{8}$	4W215	5W215	1/8
$\frac{1}{2}$	$\frac{1}{4}$	4W182	5W182	1/8	1	$\frac{1}{4}$		5W216	1/8

Wheel Dressing Stones

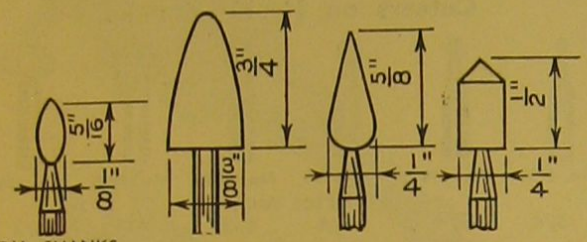
For maintaining shape and true running of Mounted Grinding Wheels. Removes wheel load and glazes.

The grooves in the No. 208 provide satisfactory means of dressing balls and similar wheel shapes.

No.	204	208	205
Size, ins.	$3\frac{1}{2} \times \frac{3}{4} \times \frac{3}{8}$	$4 \times 1\frac{1}{2} \times \frac{3}{4}$	$6 \times 1 \times 1$
Price, each	4/2	7/1	7/1

GRINDING SHAPES FOR ELECTRIC HAND TOOLS

Mounted Grinding Shapes for *Churchill* "Hand-ee" Electric Hand Tool (Made in U.S.A.)

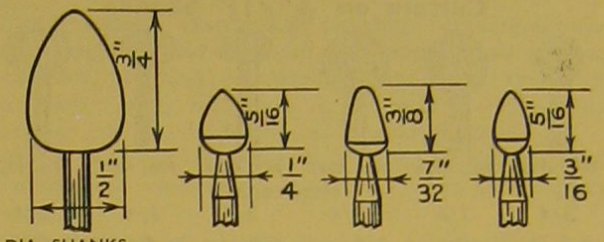


DIA. SHANKS
¼" No. 5-B46
⅜" No. 4-B46
Price 2/1 ea.

No. 5-B52
No. 4-B52
2/6 ea.

No. 5-B53
No. 4-B53
2/6 ea.

No. 5-B54
No. 4-B54
2/1 ea.

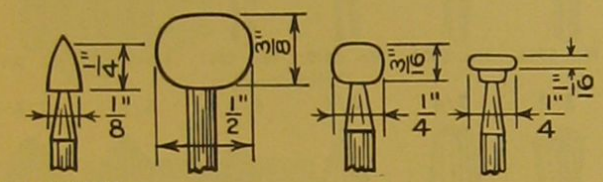


DIA. SHANKS
¼" No. 5-B42
⅜" No. 4-B42
Price 2/6 ea.

No. 5-B43
No. 4-B43
2/1 ea.

No. 5-B44
No. 4-B44
2/1 ea.

No. 5-B45
No. 4-B45
2/1 ea.

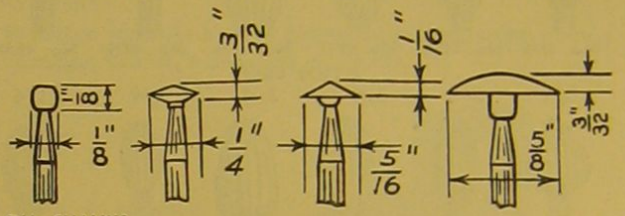


DIA. SHANKS
¼" No. 5-B55
⅜" No. 4-B55
Price 1/8 ea.

No. 5-B62
No. 4-B62
2/1 ea.

No. 5-B63
No. 4-B63
1/8 ea.

No. 5-B64
No. 4-B64
1/8 ea.

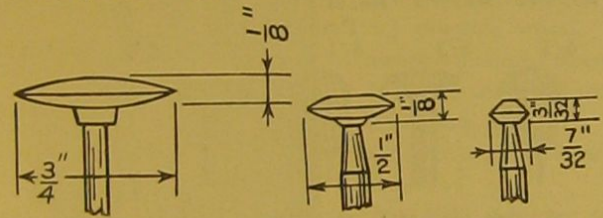


DIA. SHANKS
¼" No. 5-B65
⅜" No. 4-B65
Price 1/8 ea.

No. 5-B68
No. 4-B68
1/8 ea.

No. 5-B69
No. 4-B69
1/8 ea.

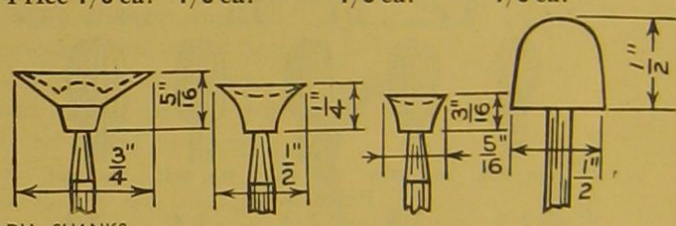
No. 5-B71
No. 4-B71
1/8 ea.



DIA. SHANKS
¼" No. 5-B70
⅜" No. 4-B70
Price 2/1 ea.

No. 5-B72
No. 4-B72
1/8 ea.

No. 5-B74
No. 4-B74
1/8 ea.

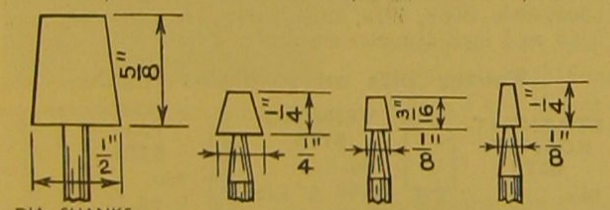


DIA. SHANKS
¼" No. 5-B81
⅜" No. 4-B81
Price 2/1 ea.

No. 5-B82
No. 4-B82
1/8 ea.

No. 5-B84
No. 4-B84
1/8 ea.

No. 5-B90
No. 4-B90
2/6 ea.

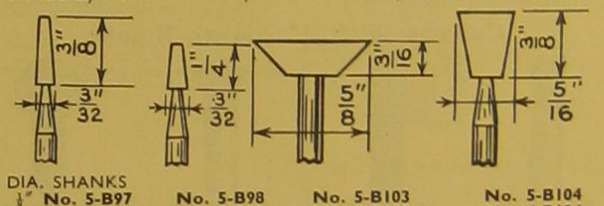


DIA. SHANKS
¼" No. 5-B91
⅜" No. 4-B91
Price 2/6 ea.

No. 5-B92
No. 4-B92
1/8 ea.

No. 5-B95
No. 4-B95
1/8 ea.

No. 5-B96
No. 4-B96
1/8 ea.

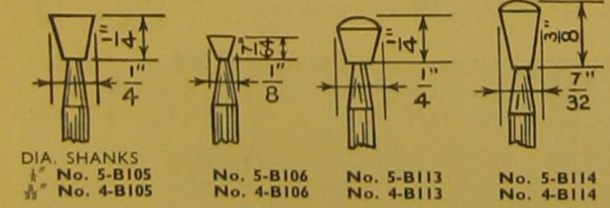


DIA. SHANKS
¼" No. 5-B97
⅜" No. 4-B97
Price 2/1 ea.

No. 5-B98
No. 4-B98
1/8 ea.

No. 5-B103
No. 4-B103
1/8 ea.

No. 5-B104
No. 4-B104
2/1 ea.

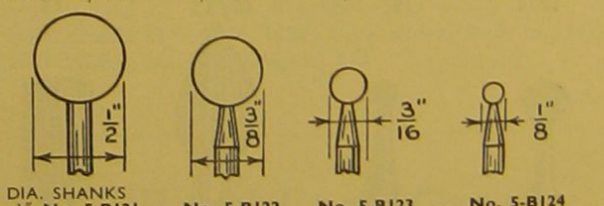


DIA. SHANKS
¼" No. 5-B105
⅜" No. 4-B105
Price 1/8 ea.

No. 5-B106
No. 4-B106
1/8 ea.

No. 5-B113
No. 4-B113
1/8 ea.

No. 5-B114
No. 4-B114
2/1 ea.

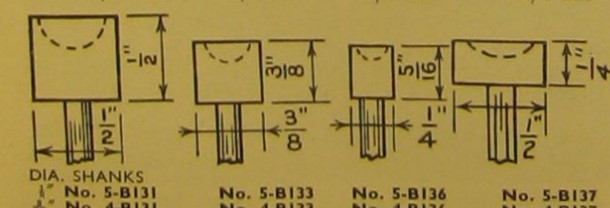


DIA. SHANKS
¼" No. 5-B121
⅜" No. 4-B121
Price 2/1 ea.

No. 5-B122
No. 4-B122
2/1 ea.

No. 5-B123
No. 4-B123
1/8 ea.

No. 5-B124
No. 4-B124
1/8 ea.



DIA. SHANKS
¼" No. 5-B131
⅜" No. 4-B131
Price 2/1 ea.

No. 5-B133
No. 4-B133
2/1 ea.

No. 5-B136
No. 4-B136
2/1 ea.

No. 5-B137
No. 4-B137
2/1 ea.

Special Set of Mounted Wheels

Set No. 3, of 15 Wheels

Contains all the necessary practical shapes and sizes of Mounted Wheels in the correct grade and grains.

Price, complete set 30/-

CUTTERS FOR ELECTRIC HAND TOOLS

Churchill "Hand-ee" Steel Cutters (Made in U.S.A.)

These Cutters provide a new, rapid and efficient method of working soft metals, such as brass, magnesium, aluminium, lead, bronze, babbitt and tin. They are perfect co-operative instruments in executing the most delicate designs in hard or soft wood. They are also of special service to sculptors, pattern makers, carvers, etc.

Cutters on $\frac{3}{32}$" × 1½" Shanks

No. 4925 | No. 4926 | No. 4927 | No. 4930 | No. 4931 | No. 4932

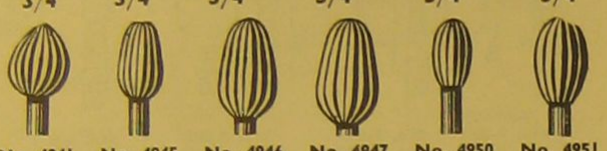
Price each

3/4 | 3/4 | 3/4 | 3/4 | 3/4 | 3/4

No. 4935 | No. 4936 | No. 4937 | No. 4938 | No. 4939 | No. 4940

Price each

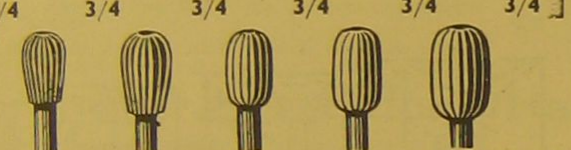
3/4 | 3/4 | 3/4 | 3/4 | 3/4 | 3/4



No. 4941 | No. 4945 | No. 4946 | No. 4947 | No. 4950 | No. 4951

Price each

3/4 | 3/4 | 3/4 | 3/4 | 3/4 | 3/4



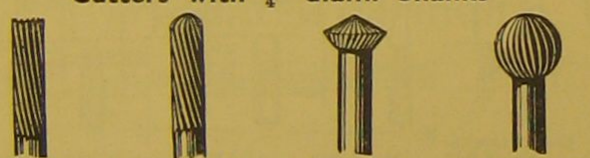
No. 4955 | No. 4956 | No. 4960 | No. 4962 | No. 4961

Price each

3/4 | 3/4 | 3/4 | 3/4 | 3/4

Mounted Set of Twelve Cutters, Nos. 4925, 4927, 4932 4935, 4938, 4939, 4941, 4945, 4947, 4951, 4955 and 4961 on $\frac{3}{32}$ inch diam. shanks. Price ... **£1 17 6**

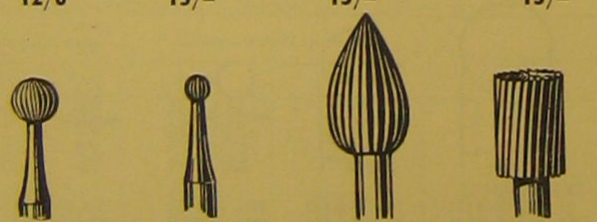
Cutters with ¼" diam. Shanks



No. RF-151 | No. RF-152 | No. RF-208 | No. RF-159

Price each

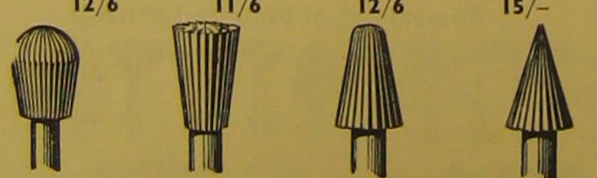
12/6 | 15/– | 15/– | 15/–



No. RF-503 | No. RF-157 | No. RF-224 | No. RF-219

Price each

12/6 | 11/6 | 12/6 | 15/–



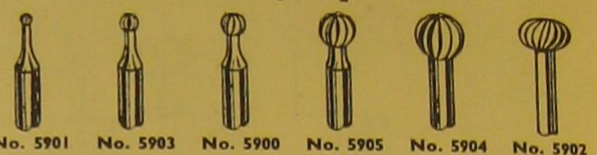
No. RF-203 | No. RF-220 | No. RF-223 | No. RF-222

Price each

15/– | 15/– | 15/– | 15/–

Price, Mounted Set of 12 Cutters ... **£8 16 9**

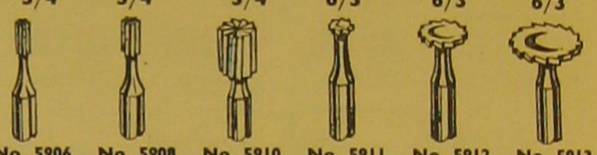
Cutters on $\frac{1}{8}$" × 1½" Shanks



No. 5901 | No. 5903 | No. 5900 | No. 5905 | No. 5904 | No. 5902

Price each

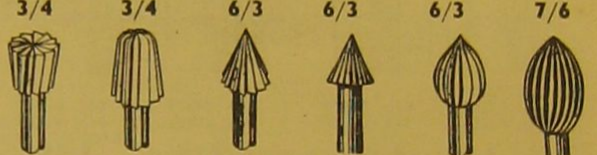
3/4 | 3/4 | 3/4 | 6/3 | 6/3 | 6/3



No. 5906 | No. 5908 | No. 5910 | No. 5911 | No. 5912 | No. 5913

Price each

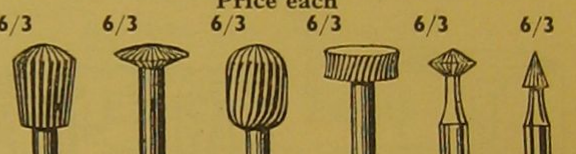
3/4 | 3/4 | 6/3 | 6/3 | 6/3 | 7/6



No. 5914 | No. 5915 | No. 5916 | No. 5918 | No. 5917 | No. 5907

Price each

6/3 | 6/3 | 6/3 | 6/3 | 6/3 | 6/3



No. 5909 | No. 5919 | No. 5898 | No. 5899 | No. 5920 | No. 5921

Price each

6/3 | 6/3 | 6/3 | 6/3 | 6/3 | 6/3

Mounted Set of 12 Popular Cutters, Nos. 5901, 5900, 5904, 5906, 5908, 5910, 5913, 5914, 5915, 5916, 5917 and 5919 on ⅛ inch diameter shanks. **Price £2 18 6**

Router Bits on ⅛" diam. Shanks

STRAIGHT ROUTER BITS

No.

S-93–$\frac{1}{8}$" Lip
S-94–$\frac{3}{16}$" Lip
S-95–¼" Lip

9/2 each

VEINING BITS

No.

V-90–$\frac{1}{16}$" Lip
V-91–$\frac{3}{32}$" Lip
V-92–$\frac{1}{8}$" Lip

6/8 each

FISH TAIL BITS

No.

F-96–$\frac{1}{8}$" Lip
F-97–$\frac{3}{16}$" Lip

14/7 each

Purfling Tool

For inlaying, undercutting or purfling.

No 5897 ... Price 6/3 each

Drilling Bits

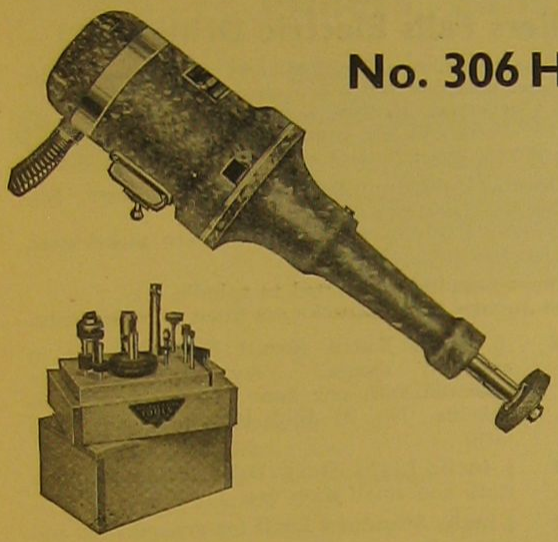
Drill with lightning speed in wood, soft metals, bakelite, etc. They are ideal for shallow drilling. Shank diam. $\frac{3}{32}$ inch.

No.	1	2	3	4	5	6	7	8	9	10
Diam. in.	·035	·037	·040	·045	·050	·055	·065	·070	·080	·090
Price each	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1

High Speed Drills

These drills are of a special design, made from the finest quality of high speed steel with polished flutes for drilling depths not exceeding ¾" in all but hardened materials.

Price each, ⅛ or $\frac{3}{32}$ inch. diam. 6/3



Millers Falls
No. 306 High Speed Electric Hand Grinder

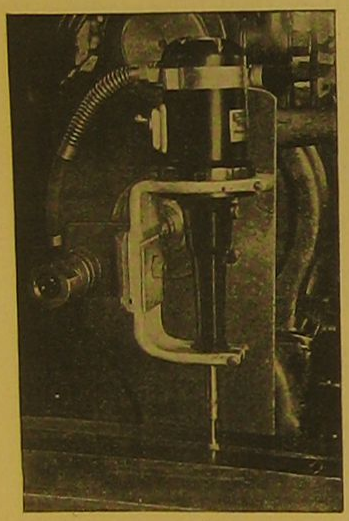
(Made in U.S.A.)

For grinding clearances, making corrections for shrinkage, working down contours, grinding out cavities, profiling, sharpening dies, special finishing and many other tool room or die shop operations this grinder provides the fastest and cheapest method.

Motor is of the Universal type, supplied in all standard voltages and operates on D.C. or A.C. up to 60 cycles supply.

The motor and spindle housing is moulded from tough durable non-heat conducting composition. The tool is thus kept comfortably cool and being very light is easy to handle.

Positive spindle lock is provided for convenience when changing wheels, extensions or chucks.



DIE GRINDING ON MILLING MACHINE

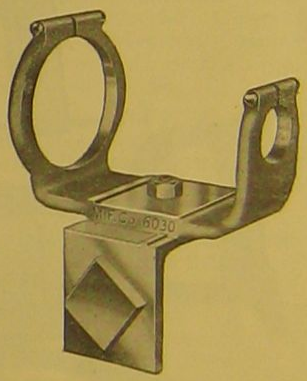
Regular equipment consists of 3 grinding wheel extensions, one $\frac{1}{4}$ in. arbor, one $\frac{1}{8}$ in. collet chuck, one $\frac{1}{8}$in. chuck arbor, one $\frac{1}{8}$ in. extension arbor, one $1\frac{1}{4}\times\frac{1}{4}\times\frac{1}{4}$ grinding wheel, one $\frac{3}{8}\times\frac{1}{8}\times\frac{3}{8}$ grinding wheel, 3 assorted mounted wheels, one chuck wrench, and 12 feet of rubber covered 3 wire cable with unbreakable plug.

Adapters specially designed enable the No. 306 Grinder to be attached for use on milling machines or lathes:—

No. 6030 Adapter for Lathe use is a cast aluminium fixture with two screw clamps for securely holding the grinder in position.

No. 6031 Adapter for Milling Machines is interchangeable with the steel angle on No. **6030**. for mounting it on Milling Machines. Two collars permit use of $\frac{3}{4}$, 1 and $1\frac{1}{8}$ inch diam. spindles.

No. 6031
MILLING MACHINE ADAPTER



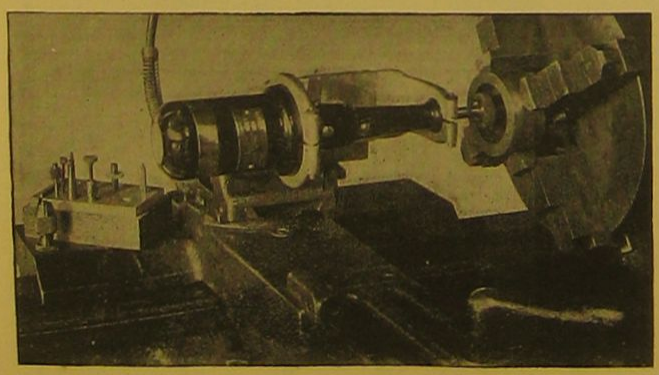
No. 6030 LATHE ADAPTER

Dimensions and Price of No 306 Hand Grinder.

Reg. Collet Chuck Capacity $\frac{1}{8}$: No Load Speed, r.p.m., 18000: Length overall, ins. 11, Net Weight, lbs., $2\frac{7}{8}$.

Price ... ... **£7 0 0 each**

Extras: No. 1524. $\frac{3}{32}$ in. Collet Chuck, **11/–**: **No. 1525,** $\frac{1}{4}$ in. collet chuck, **11/–**: **No. 1527,** 3-jaw chuck, 0-$\frac{5}{32}$ in., **11/–**
No. 6030 Lathe Adapter, **£1 7 6**: **No. 6031** Milling Machine Adapter, **8/3**



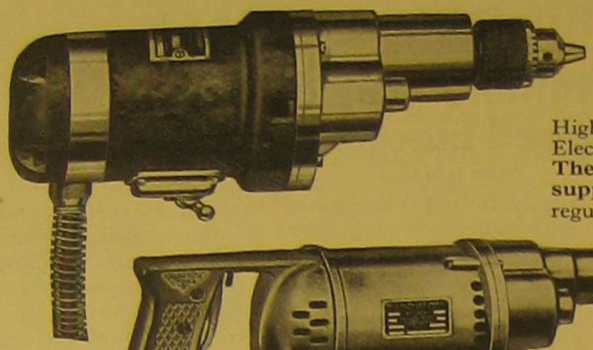
LATHE SET UP FOR INTERNAL GRINDING

"Belmoline" Grease

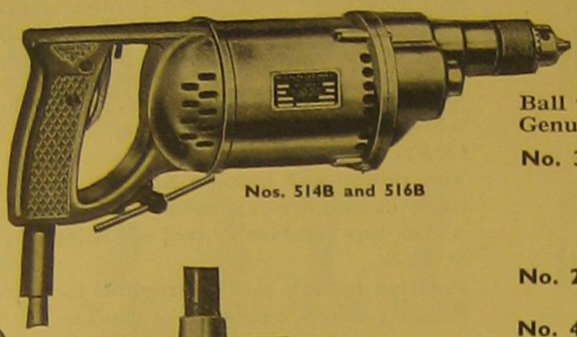
Recommended after thorough test as being the best **Grease for Millers Falls Electric Tools.**

Supplied in tins.

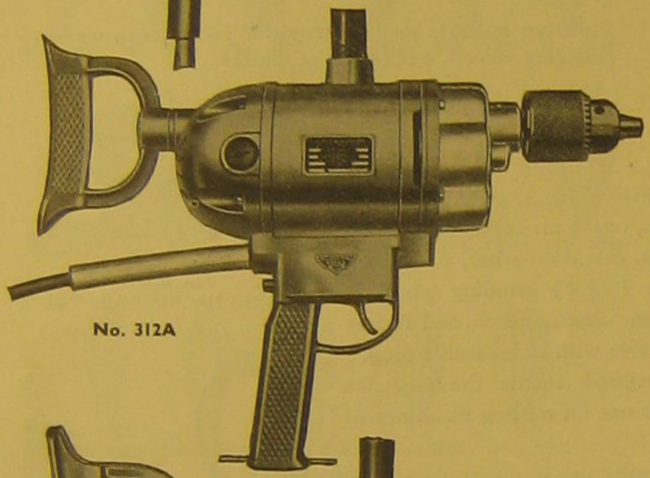
Tin, Containing lbs.	1	2	4	7	14	28	56
Price, per tin	**1/–**	**1/11**	**3/6**	**5/9**	**10/6**	**17/6**	**32/–**



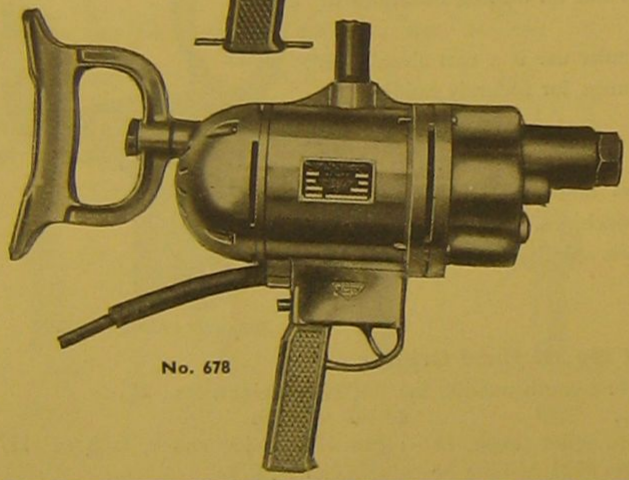
No. 316



Nos. 514B and 516B



No. 312A



No. 678

Millers Falls Electric Drills (Made in U.S.A.)

High quality, smooth running and efficient the Millers Falls Electric Drills are designed to cover all requirements. **The Powerful Universal Motors operate on A.C. or D.C. supply** up to 60 cycles and are amply ventilated. Supplied in regular voltages of 110, 150, 220, and 250.

Double Pole Switches are fully enclosed, No. 316 has single pole switch only.
Gears, Pinions and Spindles are nickel steel, heat treated.

Ball thrust bearings are fitted to spindle.
Genuine Jacobs Drill Chucks are fitted to these Drills.

No. 316 $\frac{3}{16}$ **inch, Extra Small Drill** for use in cramped spaces. Very light and can be operated with one hand. Motor housing is bakelite. No. 96 End Handle or 98 Pistol Grip.

No. 214 $\frac{1}{4}$ **inch, Light Duty Drill** for intermittent work and small shop use.

No. 414 $\frac{1}{4}$ **inch, Standard Drill** for general shop and automotive maintenance service. Well balanced, easily controlled.

No. 514B $\frac{1}{4}$ **inch, Heavy Duty Drill.** For continuous production work.

No. 516B $\frac{5}{16}$ **inch, Heavy Duty Drill.** Similar to No. 514B but slower speed.

No. 638B $\frac{3}{8}$ **inch, Special Drill.** For light service and easy handling.

No. 538A $\frac{3}{8}$ **inch, Standard Drill.** A sturdy readily controlled tool for general service.

No. 312A $\frac{1}{2}$ **inch, Special Drill.** A particularly fine tool for general work.

No. 312B $\frac{1}{2}$ **inch, Standard Drill.** Power, lightweight, balance, speed, durability, and trouble free in performance.

No. 612A $\frac{1}{2}$ **inch, Heavy Duty Drill.** A rugged machine for continuous service under exacting conditions.

No. 658 $\frac{5}{8}$ **inch, Heavy Duty Drill.** Recommended for operating portable pipe threading machines and tough work.

No. 634 $\frac{3}{4}$ **inch, Standard Drill.** A short length, ligh weight machine.

No. 734B $\frac{3}{4}$ **inch, Extra Heavy Duty Drill.** An ideal unit for heavy drilling and for driving cylinder grinders and hones.

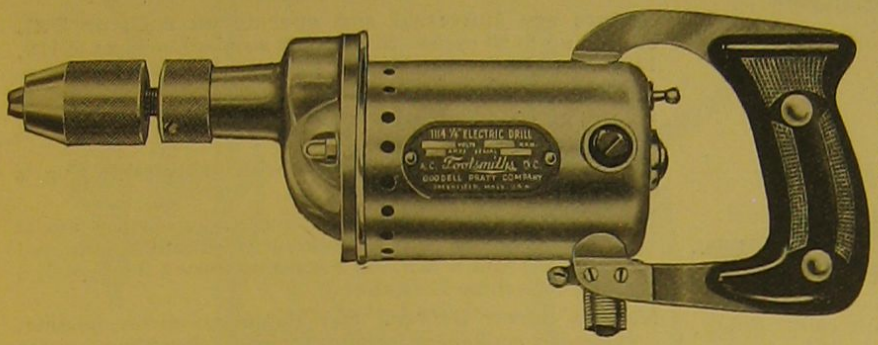
No. 678 $\frac{7}{8}$ **inch, Heavy Duty Drill.** Fitted with No. 2 Morse Taper Socket in place of chuck.

No. 801 **1 inch, Standard Drill.** For all ordinary drilling up to capacity. Fitted with No. 3 M.T. Socket in place of chuck.

Type and Capacity in Steel	Drill No.	Spindle	Speed r.p.m. No Load	Speed r.p.m. Full Load	Consumpt. Full Load Amps.	Net Weight Lbs.	Length Overall Ins.	Length Cable Supplied Feet	Price Each
$\frac{3}{16}$—Extra Small	316		3000	1500	1·2	$3\frac{1}{8}$	$9\frac{3}{8}$	12	£8 5 0
$\frac{1}{4}$—Light Duty	214		1800	1000	2·0	5	12	12	6 12 6
$\frac{1}{4}$—Standard	414	Jacobs	1800	1000	2·5	$5\frac{1}{2}$	12	12	7 10 0
$\frac{1}{4}$—Heavy Duty	514B	geared	2000	1200	3·0	$7\frac{1}{2}$	14	12	8 7 6
$\frac{5}{16}$—Heavy Duty	516B	3 Jaw	1500	800	3·0	$7\frac{3}{4}$	14	12	8 18 6
$\frac{3}{8}$—Special	638B	Chuck	1000	600	3·0	$8\frac{1}{2}$	14	12	9 7 6
$\frac{3}{8}$—Standard	538A		1000	600	5·0	$13\frac{3}{4}$	18	15	11 0 0
$\frac{1}{2}$—Special	312A		525	360	4·5	14	17	15	11 0 0
$\frac{1}{2}$—Standard	312B		525	360	4·5	15	$18\frac{1}{4}$	15	12 2 6
$\frac{1}{2}$—Heavy Duty	612A	Jacobs	650	350	5·0	15	20	15	15 0 0
$\frac{5}{8}$—Heavy Duty	658	geared	475	300	6·5	$20\frac{3}{4}$	$19\frac{1}{4}$	15	16 0 0
$\frac{3}{4}$—Standard	634	3 Jaw Chuck	475	300	6·5	21	$19\frac{3}{4}$	15	17 17 6
$\frac{3}{4}$—Extra Heavy Duty	734B		400	250	7·5	$24\frac{3}{4}$	$21\frac{3}{4}$	15	19 10 6
$\frac{7}{8}$—Heavy Duty	678	No. 2 M.T. Socket	375	190	7·5	$21\frac{1}{4}$	$18\frac{1}{4}$	15	19 18 6
1—Standard	801	No. 3 M.T. ,,	275	175	7·5	$23\frac{5}{8}$	$23\frac{1}{4}$	15	23 17 6

Drills to operate with special speeds can be supplied at slight extra cost.

Millers Falls Electric Drills (Made in U.S.A.)



No. 1114. ¼-inch Capacity

For light engineering, aircraft work and general manufacturing this light drill will give handy, and substantial service.

The Body is a suitably ventilated deep steel stamping to which the handle frame is electrically welded.

Motor is of the Universal type operating on A.C. or D.C. It is heavily insulated, fan-cooled, and of ample power. Under test a ¼ inch hole has been drilled in 2 inch cast iron in one minute.

Gears and Spindle are chrome-nickel steel, heat-treated.

Bronze bearings are fitted where required. The Heavy-duty **Commutator** is mica-insulated.

Switch is positive make and break, fully enclosed. Eight feet of rubber-covered cord with protector at handle is fitted.

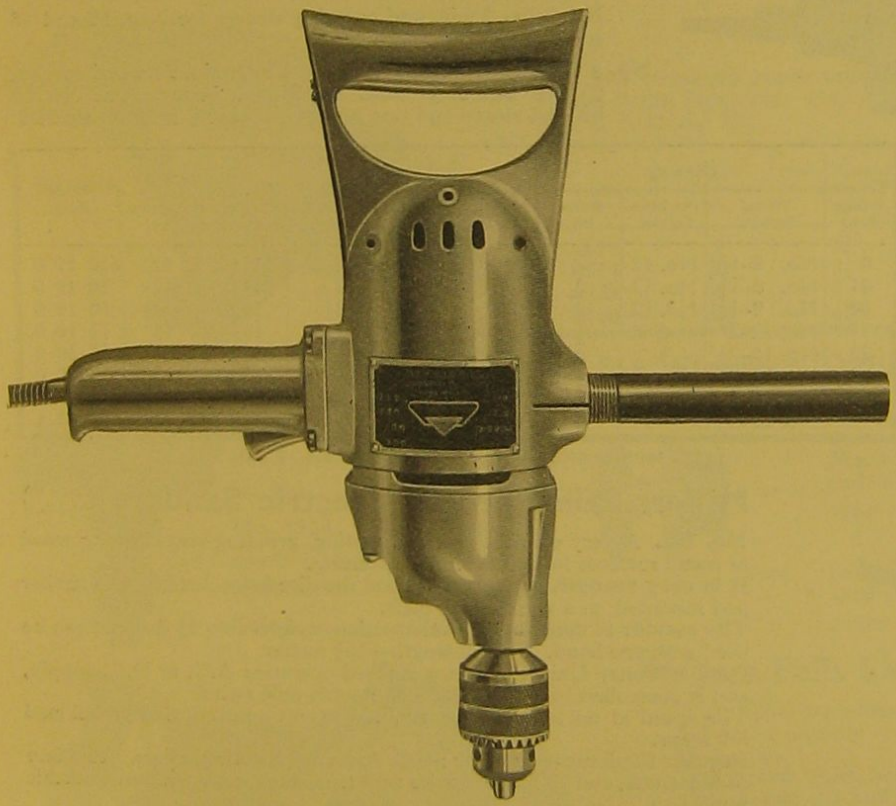
Specification:

Capacity, in steel, ins.	¼
Speed, No Load, r.p.m.	2750
Consumption, Full Load, Amps.	2·2
Length, ins.	13 3/16
Weight, lbs.	5

Price.

No. 1114 with Goodell Keyless Chuck, ¼ inch capacity ... ... **£4 9 6 each**

No. 1114J with Genuine Jacobs No. 1A Key-operated Chuck, ¼ inch capacity ... ... **£4 17 6 each**



No. 712. ½-inch Capacity

This is a low priced drill of high capacity. It is easy to handle and is excellent in performance.

The streamlined aluminium body houses a powerful **General Electric Universal Motor** operating on A.C. or D.C. supplies up to 60 cycles.

Switch is fully enclosed, double pole, automatic releasing. **Gears, Pinions, Spindle and Armature Shaft** are heat treated alloy steel.

Ten feet of three wire cable with unbreakable plug, is fitted.

Specification:

Capacity in steel, ins. ...	½
Speed, No Load, r.p.m....	400
Consumption, Full Load, amps. at 110 Volts	3·4
Length, ins.	14½
Weight, lbs.	10½

No. 712. With Genuine Jacobs No. 33 Key-operated chuck, ½ inch capacity. **£8 5 0**

Drill Stand No. 1240. for use with No. 712 Electric Drill only. **£5 10 0**

Right Angle Drive. No. 1007

For use with Nos. 514B and 516B Electric Drills. The attachment clamps on to the gear case casting and with various accessories that can be supplied enables sawing, sanding, polishing, grinding and boring operations to be carried out. Length, 6¾ ins. Weight, 2¼ lbs.

Three speed ratios can be supplied: Fast, 1½ to 1 : Medium 1 to 1 : Slow 1 to 1½.

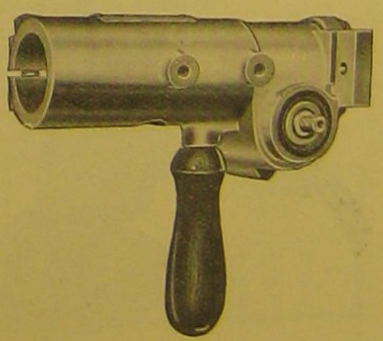
Price No. 1007 Right Angle Drive ... ... **£4 8 0 each**

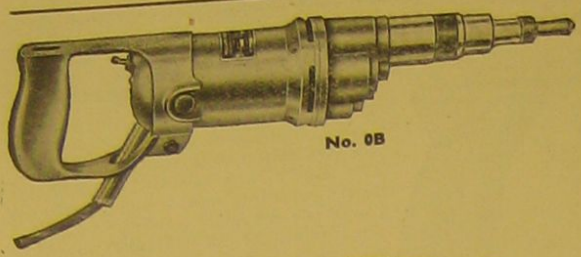
Accessories supplied as extras:—

Polishing Equipment **£2 15 0**

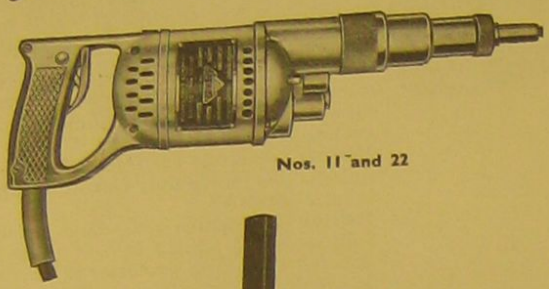
Grinding and Sanding Equipment **£3 17 0**

Sawing Equipment **£2 15 0**

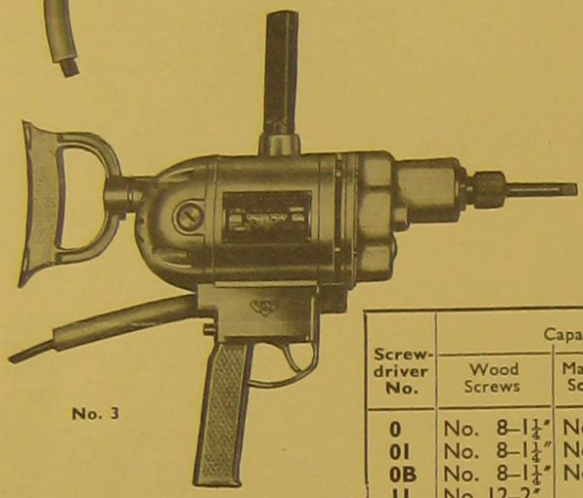




No. 0B



Nos. 11 and 22



No. 3

Millers Falls Electric Screw Drivers

(Made in U.S.A.)

Motors are Universal and operate on A.C. or D.C. supply up to 60 cycles. Supplied in standard voltages of 110, 150, 220 and 250 volts. Pigtail brushes are fitted and armatures run on ball bearings.

Gears, pinions and spindles are heat treated chrome-nickel steel.

Rubber covered 3 wire cable with unbreakable plug is supplied with each tool.

Nos. 0 and 01 Screw Drivers. For driving small screws at close quarters. Fitted pistol grip or end handle and supplied with 6 bits and 3 centring sleeves for Nos. 4, 6 and 8 machine screws.

No. 0B Screw Driver. Has aluminium motor housing. Regular equipment includes 6 bits and 3 centring sleeves for Nos. 4, 6, and 8 machine screws.

Nos. 11 and 22 Screw Drivers. Powerful units with dual action, adjustable clutch-mechanism to any desired depth or tightness. No. 11 has 2 bits and centring sleeves for Nos. 8 and 12 screws. No. 22 has 2 bits and centring sleeves for Nos. 12 and 16 screws.

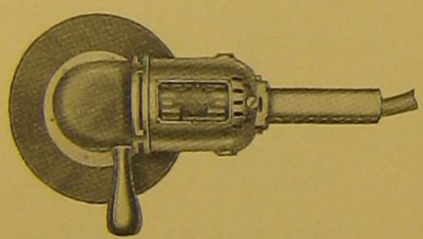
Nos. 1 and 2 Screw Drivers. Fitted with positive clutches which engage when pressure is applied.
No. 1 has 2 bits and centring sleeves for Nos. 8 and 12 screws.

No. 2 has 2 bits and centring sleeves for Nos. 12 and 16 screws.

No. 3 Screw Driver. Will drive 4 inch No. 20 wood screws, $\frac{3}{8}'' \times 4\frac{1}{2}''$ lags or $\frac{1}{2}''$ nuts. Equipment includes one No. 18 bit and sleeve and one hexagon socket $\frac{7}{8}$ inch across flats.

Screw-driver No.	Capacity: Wood Screws	Capacity: Machine Screws	Capacity: Bolts Ins.	No Load Speed r.p.m.	Consumpt. Full Load Amps.	Net Weight Lbs.	Length Overall Ins.	Length Cable Supplied Feet	Price Each
0	No. 8–1¼″	No. 12	3/16	1200	1·2	3 5/16	11¼	12	£10 19 0
01	No. 8–1¼″	No. 12	3/16	750	1·2	3 5/16	11¼	12	10 19 0
0B	No. 8–1¼″	No. 12	3/16	750	1·2	3¾	14½	12	10 19 0
11	No. 12–2″	5/16	¼	500	2·5	7½	16½	15	12 10 0
22	No. 16–2½″	⅜	5/16	500	3·5	9¼	18½	15	16 10 0
1	No. 12–2″	—	¼	500	2·5	6	12¼	15	11 10 0
2	No. 16–3¼″	—	5/16	500	3·5	8¼	14	15	16 5 0
3	No. 20–4″	—	½	500	4·5	14	14¾	15	20 17 6

Extra for Revising Switch for all Nos.—**£3 0 0**



Millers Falls Portable Electric Sanders (Made in U.S.A.)

No. 707. A very efficient tool for sanding, grinding and cleaning wood or metal surfaces for lacquering or painting.
It is very smooth in operation and the disc has a flexible, live rubber pad mounted on a spring steel back.
The sander is compact in construction, weighs only 8¼ lbs. and can be used with one hand. Overall length—15¾ inches.
High efficiency Universal motor is fitted operating A.C. or D.C. supply, and is controlled by a fully enclosed double pole switch.
The speed at no load is 4200 r.p.m. Current consumption at full load 3·3 amps.
Regular Equipment includes:—12 Assorted Sanding Discs, Auxiliary Side Handle, and 25 feet of 3 wire rubber covered cable with unbreakable plug.

No. 707 Price £12 7 6 Extra Flexible Pads £1 15 0 each.
Extra, 7″ Felt Rubbing Pad, 8/3 each

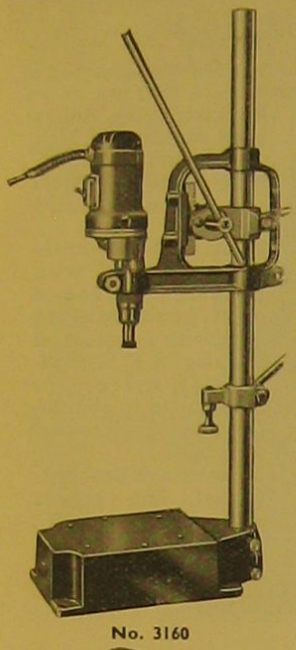
No. 809B Disc Sander

Designed for speedy preparation of wood, metal and other surfaces for finishing of all kinds. By using an arbor in place of sanding disc the tool can be used for grinding and wire brushing.
Capacity 7 ins. or 9 ins. diam. disc. No load speed 2600 r.p.m. Current consumption 5·0 amps. Length, 10½ ins. Net weight, 12 lbs.
Regularly equipped with 9 in. Flexible Pad, 12 assortment sanding discs, and 15 feet of 3 wire rubber covered cable with armoured plug.

No. 809B—7 ins. Sander ... ... **£21 0 0 each**
No. 809B—9 ins. Sander ... ... **£22 0 0 ,,**

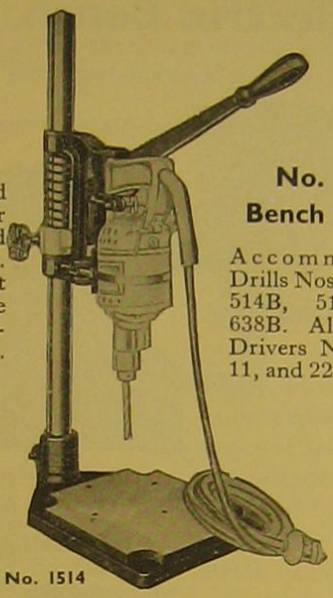
ELECTRIC DRILL STANDS & HAND SAWS

Millers Falls Bench Drill Stands (Made in U.S.A.)


No. 3160

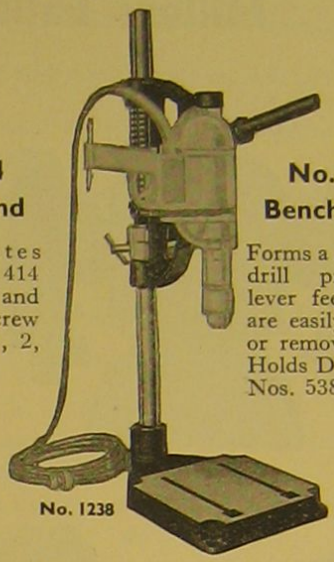
No. 3160 Bench Stand

With rack and pinion feed. For drill No. 316 and Screw Drivers Nos. 0, 01 and 0B. Foot treadle feed can be fitted and vice supplied at extra cost.


No. 1514

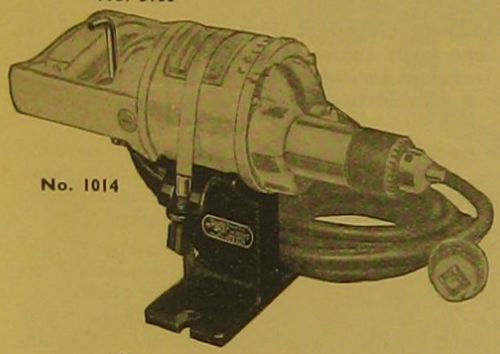
No. 1514 Bench Stand

Accommodates Drills Nos. 214, 414 514B, 516B and 638B. Also Screw Drivers Nos. 1, 2, 11, and 22.


No. 1238

No. 1238 Bench Stand

Forms a heavy duty drill press with lever feed. Drills are easily mounted or removed. Holds Drills Types Nos. 538 to 801.

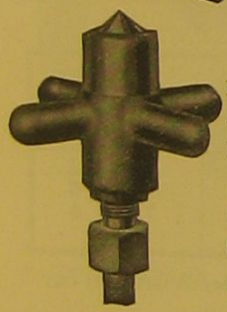

No. 1014

No. 1014 Bench Drill Stand

This is a stationary bench unit for use where work is fed to the drill. Holds Drills Nos. 214, 414, 514B, 516B, 638B and Screw Drivers Nos. 1, 2, 11 and 22.

Stand No.	Height Overall Ins.	Max. Distance Chuck to Table Ins.	Size of Base Ins.	Net Weight Lbs.	Price Each
1014	4	$5\frac{3}{8}$	$5 \times 2\frac{3}{8}$	$2\frac{1}{2}$	£0 13 9
1514	28	$13\frac{1}{4}$	9×8	37	3 17 0
1238	36	16	10×10	77	4 19 0
3160	$27\frac{7}{8}$	$16\frac{1}{2}$	$11\frac{1}{4} \times 6\frac{1}{4}$	29	4 2 6

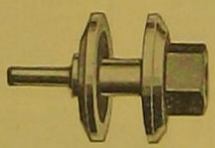
Accessories for Electric Drills



Feed Screw. Interchangeable with end handles.

No. 1524. Fitting all Electric Drills. Nos. 538A to 801.

Price ... **19/3**



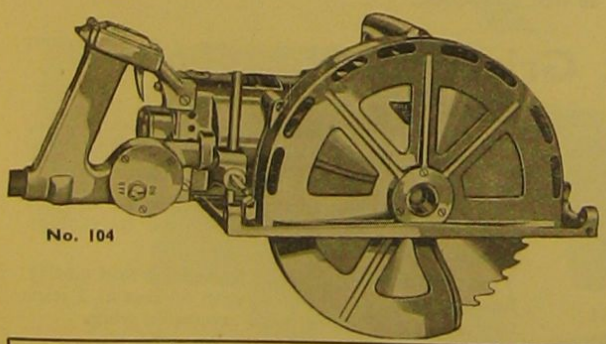
Arbor. For operating grinding and buffing wheels and wire brush in chuck of electric drills.

No. 1518, Fitting Nos. 214, 414, 514B, 516B, and 638 ... ... **4/2 each**

No. 1523, Fitting Nos. 312A to 734B **8/3 each**

Vice. For use with Stands Nos. 1514, 1238 and 3160. Jaws $2\frac{3}{8}$ ins. wide, open $2\frac{5}{8}$ ins.

Price ... ... **£1 0 6 each**


No. 104

Millers Falls Electric Hand Saws (Made in U.S.A.)

These Saws are adjustable for cutting depth from 0 ins. to full rated capacity and all sizes will cut any bevel up to 45 degrees.

The guard which has a movable bottom, encloses the saw when not in use and **automatically telescopes into its upper half when the saw is in operation.**

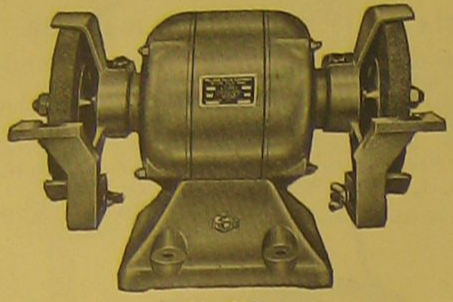
Operation is by Universal Motor for D.C. or A.C. supply up to 60 cycles. Voltages 110, 150, 220 and 250 volts.

Two switches are fitted.

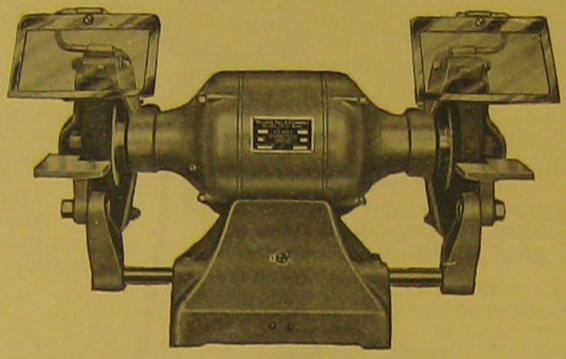
Regular equipment includes:—Combination Saw Blade, Detachable Tilting Base for bevelling. Rip Sawing Guide. Saw Wrench, Lubricant. 14 ft. of three wire rubber covered cable with armoured plug and wood carrying case.

No.	Capacity Straight Cut Ins.	Capacity 45° Bevel Ins.	Saws Diam. ($\frac{1}{2}$" Hole) Inches	No Load Speed r.p.m.	Net Weight lbs.	Price Each
102	2	$\frac{1}{2}$	7	2000	20	£27 10 0
103	3	$1\frac{1}{4}$	9	2000	25	36 17 0
104	4	$1\frac{3}{4}$	11	2000	27	45 7 6

Millers Falls Electric Bench Grinders (Made in U.S.A.)



No. 806

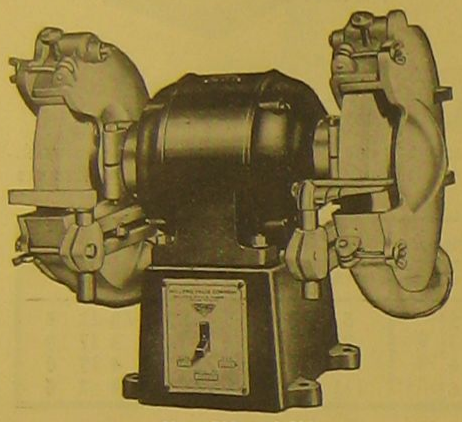


No. 807

Built under the Millers Falls standard of high quality and workmanship these Grinders are powerful and rugged.

They are dynamically balanced with totally enclosed dust-proof motors fitted with grease sealed oversize S.K.F. ball-bearings and can be relied upon to give utmost and efficient performance.

Motors are not universal but operate only on either A.C. or D.C. supply.



Nos. 510 and 710

No. 806—**6 inch Ball Bearing Grinder.** Has ⅓ h.p. motor and is furnished with one each coarse and fine grinding wheels and wheel guards.

No. 807—**7 inch Heavy Duty Grinder.** Has ½ h.p. motor and is furnished with one each coarse and fine grinding wheels, adjustable work rests and enclosed type guards. This machine can be fitted as a combination grinder and buffer at small additional cost.

No. 510—**10 inch Ball Bearing Grinder.** A production machine with ¾ h.p. motor, enclosed wheel guards having dust exhaust connection, adjustable spark shields and work rests. One coarse and one fine grade grinding wheel are supplied.

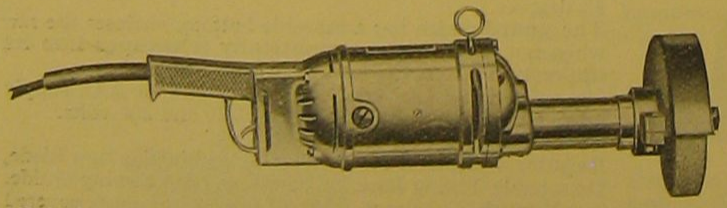
No. 710—**10 inch Heavy Duty Grinder.** This machine has 1 h.p. motor, but otherwise is similar in design and equipment to No. 510. No grinding wheels are supplied with this grinder.

Nos. 510 and 710 Grinders can be had mounted on very rigid welded all steel pedestals fitted with water pot and tool shelf, at extra cost.

Grinder No.	Power Rating h.p.	No Load Speed r.p.m.	Height to Centre of Spindle Ins.	Size of Grinding Wheel Ins.	Net Weight Lbs.	Price Each		
						A.C. 110 and 220V. 60 cy. single phase	A.C. 110 and 220V. 25 cy. single phase	D.C. 115 and 230V.
806	⅓	3450	10	6× ¾×½	42	£6 6 0	—	£6 17 6
807	½	3450	11½	7×1 ×⅝	50	12 12 0	—	13 5 0
510	¾	1725	10	10×1 ×¾	155	32 10 0	£32 10 0	32 10 0
710	1	1725	11	10×1¼×¾	205	38 10 0	44 0 0	—

Accessories:—Buffing Spindles, Wire Wheel Brushes and Drill Chucks and Spindles for use with these Bench Grinders can be supplied. Prices and details will be sent on request.

Millers Falls Portable Electric Grinders, No. 406B (Made in U.S.A.)



Grinder	406B	461
Diam. of Wheel or Disc., ins	6	6
No Load Speed, r.p.m.	3700	5500
Length, ins.	23½	23½
Net weight, lbs.	24	24
Price, without Grinding Wheels	**£23 10 0**	**£23 10 0**
,, **Suspension Spring, Extra**	**5 6**	**5 6**

For heavy duty in snagging castings, grinding heavy welds and wire brushing welds.

Motor is universal type operating on A.C. or D.C. supply, and is totally enclosed to exclude injurious grit.

The grinders are nicely balanced and easily handled and are supplied with 15 feet of 3 wire rubber covered cable with armoured plug.

No. 461 is similar in design but runs at much higher speed and uses only rubber bonded or bakelite bonded wheels.

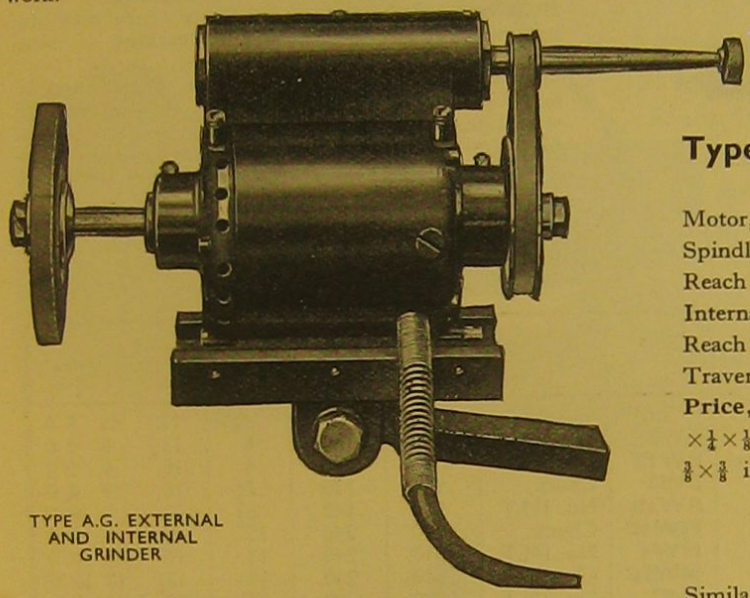
PRECISION ELECTRIC TOOL-POST GRINDERS

"Coll-Ace" High Speed Precision Tool-Post Grinders (British Made)

These high precision grinders operating with external speed of 10,000 r.p.m. and internal attachment spindle speed of 30,000 r.p.m. are built to maintain over a long period a limit of accuracy of ·0001 inch.

They are designed for attachment to the lathe tool-post and can also be used with equal facility on milling machines, shapers, planers, etc.

Perfect running of the dynamically balanced specially cooled armature eliminates vibration and produces chatter-free work.



TYPE A.G. EXTERNAL AND INTERNAL GRINDER

Regular Equipment supplied:—Grinding Wheel Guard, Cutter Grinding Rest, Cross Feed Lever, 10 ft. 3 core C.T.S. cable and switch.

Type A.G. External & Internal Grinder

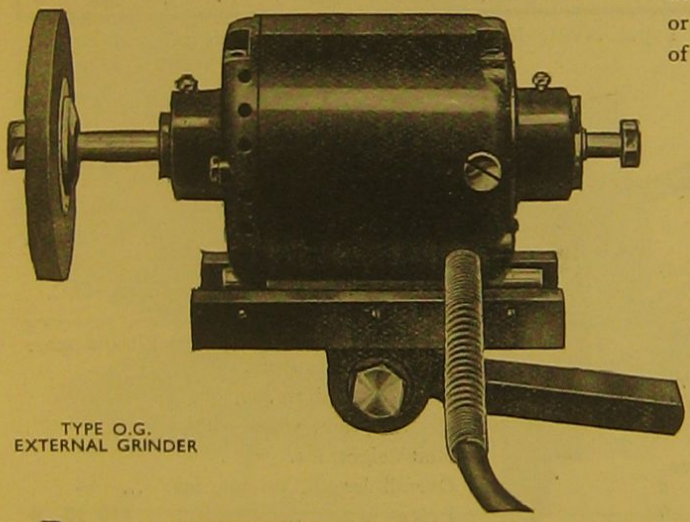
Specification.

Motor, H.P. $\frac{1}{6}$
Spindle speed, r.p.m. 10,000 approx.
Reach of Spindle, ins. $2\frac{1}{2}$
Internal Spindle, speed, r.p.m., 30,000 approx.
Reach of Internal Spindle, ins. 3
Traverse of Spindle, ins. $2\frac{1}{2}$
Price, including seven grinding wheels, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and 1 inch $\times\frac{1}{4}\times\frac{1}{8}$ inch for internal grinding and $2\frac{1}{2}$ and 4 inches $\times\frac{3}{8}\times\frac{3}{8}$ ins. for external. ... **£17 17 0**

Type C.G.

Similar to Type A.G. but is fitted with either a three-jaw or spring chuck operating at about 35,000 r.p.m., in place of the internal grinding spindle.

Price **£22 5 6**



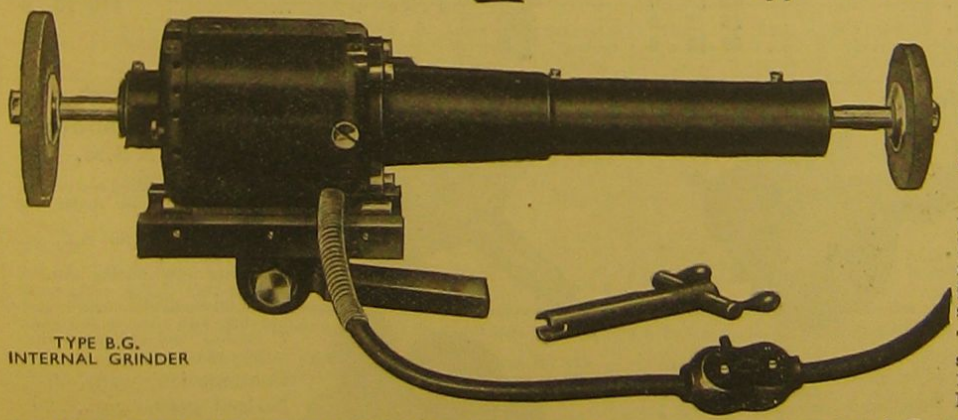
TYPE O.G. EXTERNAL GRINDER

Type O.G. External Grinder

Specification.

Motor, H.P. $\frac{1}{6}$
Motor Spindle Speed, r.p.m., 10,000 approx.
Reach of Spindle, ins. $2\frac{1}{2}$
Length of Traverse, ins. $2\frac{1}{2}$
Price, including two grinding wheels, $2\frac{1}{2}\times\frac{3}{8}\times\frac{3}{8}$ and $4\times\frac{3}{8}\times\frac{3}{8}$ ins. **£13 13 0**

Type B.G. Internal Grinder



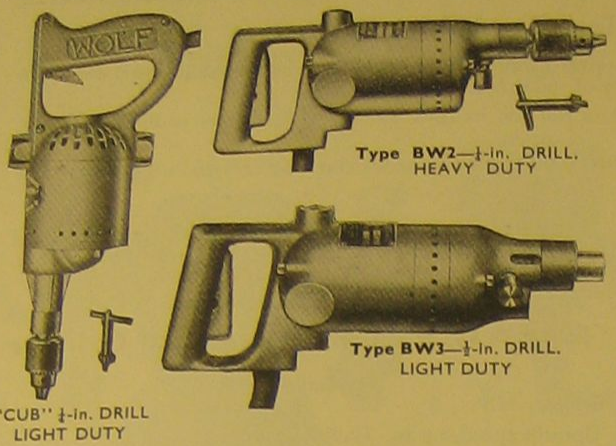
TYPE B.G. INTERNAL GRINDER

Specification.

Motor, H.P. $\frac{1}{6}$
Reach of Motor Spindle, $2\frac{1}{2}$ ins.
Reach of Attachment Spindle, 10 ins.
Motor and Attachment Spindles Speed, r.p.m., 10,000 approx.
Length of Traverse, ins. $2\frac{1}{2}$
Price, including two grinding wheels, $2\frac{1}{2}$ and 4 ins. $\times\frac{3}{8}\times\frac{3}{8}$ ins. and 10 ins. internal spindle ... **£21 0 0**

Type B.G. Grinder can be supplied also with 5 ins. or 15 ins. attachment spindles. Prices on application.

"Coll-Ace" Grinders are regularly supplied for voltages 200/220 and 230/250 A.C. or D.C. Windings for other voltages can be furnished to order.



Type BW2—¼-in. DRILL. HEAVY DUTY

Type BW3—¼-in. DRILL. LIGHT DUTY

"CUB" ¼-in. DRILL LIGHT DUTY

Wolf Electric Drills (British Made)

High quality materials, good workmanship and design form the basis on which "Wolf" Electric Tools are built.

Frame and Gear Box and unbreakable alloy die castings and are light in weight.

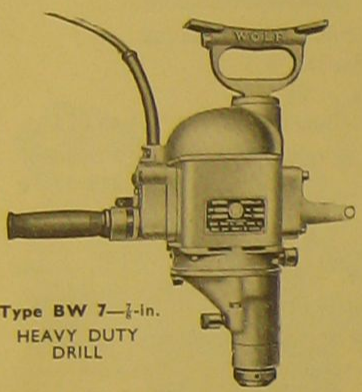
Gears are chrome nickel steel, machine cut and toughened to the proper degree of hardness.

Bearings. Ball bearings are fitted where they are necessary and elsewhere plain bearings of best quality metal are supplied.

Insulation is of moulded bakelite where possible and high grade insulating varnish is used for the windings.

Genuine Jacobs Chucks are fitted and supplied with all models listed here, except Types BW4 and BW7 which have sockets only.

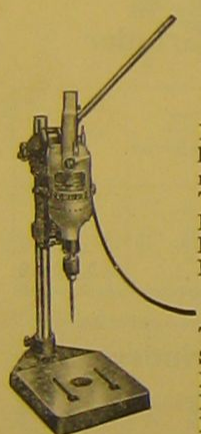
Universal Motors supplied in these Drills are of ample power, well ventilated and operate on A.C. or D.C. and are supplied in standard voltages, 100/120, 200/220 and 230/250.



Type BW 7—¼-in. HEAVY DUTY DRILL

Capacity Ins.	Type	Spindle	No Load Speed r.p.m.	Consumption, Watts	Nett Weight Lbs.	Overall Length Ins.	Price Each
¼	Light	"Cub"	Chuck	2800	130	4¾	13	£5 5 0
¼	Heavy	BW2	Chuck	2500	140	6	13¾	8 0 0
5/16	High Speed	BW2S	Chuck	4500	140	6	13	9 0 0
3/8	Heavy	BW3	Chuck	900	130	7¾	16	9 0 0
½	Light	BW3B	No. 1M.T.	580	140	6¾	13½	8 0 0
½	Heavy	NW4C	Chuck	610	240	15	18	10 10 0
½	Heavy	NW4	No. 1M.T.	610	240	13	15	9 10 0
½	Standard	NW5C	Chuck	510	240	15	18¾	12 15 0
⅝	Heavy	BW7	No. 2M.T.	280	300	25	18	20 5 0

Feed Screws for Types NW4, 4C, 5 ... **15/–**: BW7 (one included in price) **extras 27/6 each**



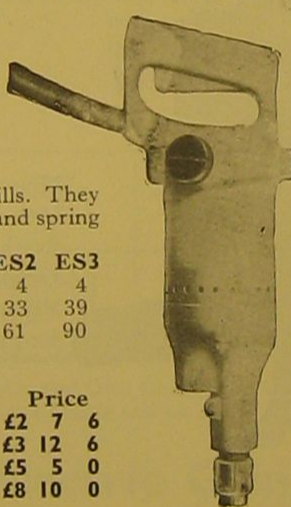
Wolf Bench Drill Stands

For use with "Wolf" Electric Drills. They have solid steel pillar, lever feed, and spring return.

Type	SO	ES1	ES2	ES3
Depth of Feed, ins.	2½	3	4	4
Height overall, ins.	20	20	33	39
Net weight, lbs.	22	29	61	90

Prices, Stand only

Type	For Drills	Price
SO	"Cub" ¼	£2 7 6
ES1	¼, 5/16, ⅜	£3 12 6
ES2	½, 9/16, ⅝	£5 5 0
ES3	⅞	£8 10 0



Wolf Portable Screw Driver

Type BWS1

For Screws and Nuts up to 5/16 in. Whitworth.

Universal motor for A.C. or D.C.

Complete with starting switch, reversing plug, 5 yds. C.T.S. cable, 1 bit and spare pair carbon brushes.

No load speed, r.p.m., 580

Consumption, watts, 130

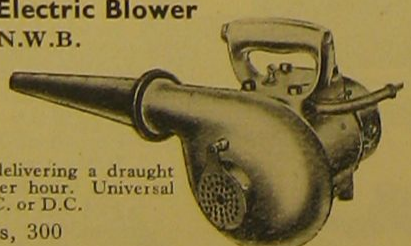
Nett weight, lbs. 8½

Overall length, no bit, ins. ... 14

Price £10 10 0

Wolf Portable Electric Blower

Type N.W.B.



A powerful machine delivering a draught of air at 220 miles per hour. Universal motor operating on A.C. or D.C.

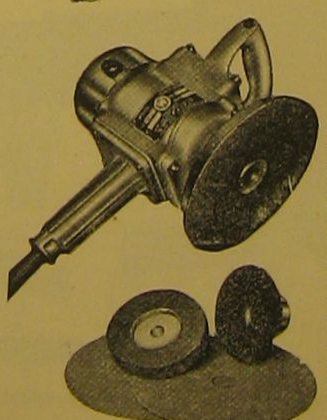
Consumption, watts, 300

Weight, lbs. 11

Nozzel velocity, m.p.h. 220

Price, Blower only, £9 15 0

Extra for Suction Attachment (comprising Hose, Couplings, Suction Nozzle and Dust Bag **£2 15 0**



Wolf 7-inch Portable Sander

Type N S.M.

For sanding, grinding and cleaning operations on metal or wood.

Universal motor for A.C. or D.C. operation.

Complete with starting switch, 5yds. 3-core C.T.S. cable (one earth lead), flexible felt backing disc with adaptor and key, 7" sanding disc and spare pair carbon brushes.

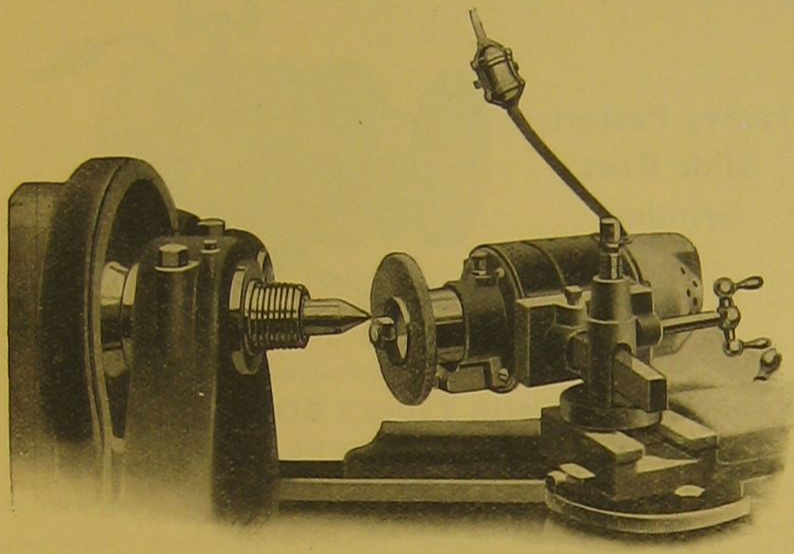
Consumption, watts, 230

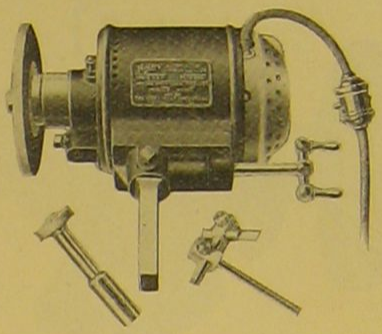
No load speed, r.p.m., 4200

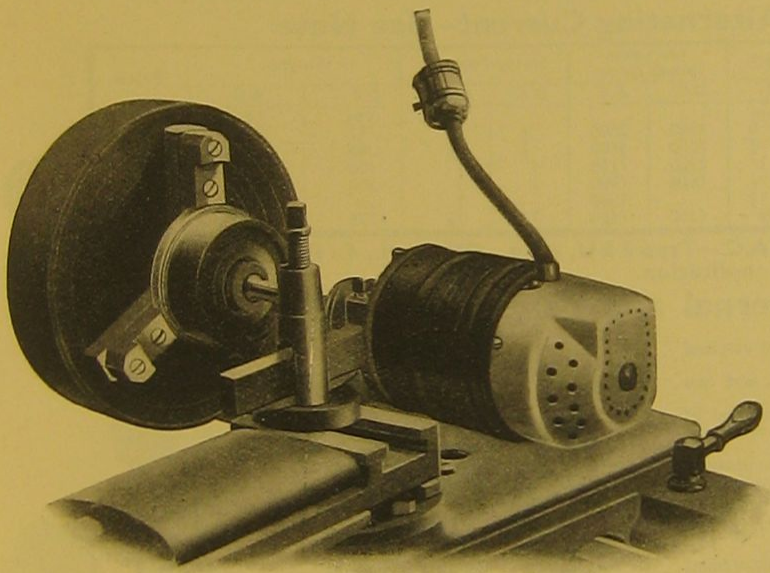
Net weight, lbs. 12

Price ... £10 15 0

Hisey-Wolf Portable Electric Tool Post Grinders (Made in U.S.A.)







These Grinders are exceedingly useful for surface, parallel, and internal grinding jobs of great variety, such as grinding lathe centres, cutters, reamers, dies, rolls, etc. They may be fixed in the tool post of a lathe, milling machine, vice or head of a shaper, planer, or boring mill.

Motors are designed specially for the distinct purpose of the tools; they are simple and fool-proof, and require minimum attention from the operator.

Bearings are of bronze, adjustable from outside of motor, and are protected from dust and grit.

Direction of rotation is quickly reversible by merely changing connections of two leads brought out to two terminal posts at top of motor.

The tool post bar is so held that the motor can be swung at any angle within a complete circle.

The V slide travel is actuated by worm, and fitted with gib to take up wear.

For internal grinding the extension mandrel is screwed to the spindle after removing the regular wheel.

Equipment includes :—Two grinding wheels, internal grinding spindle, tooth rest attachment, 7 feet of reinforced electrical cable with quick-acting suspended switch.

Type	Supply	Dimensions Inches	Grinding Wheel Inches	Internal Grinding Wheel Inches	Extension Mandrel Inches	Tool Shank Inches	Slide Travel Inches	No Load Speed r.p.m.	Horse Power	Net Weight Lbs.	Price
2 AD	D.C.	5⅜ × 11¼	4½ × ⅜ × ½	1½ × ⅜ × ⅜	4½ × ⅜	⅝ × 1	None	4500	¼	15	
2 ASD	,,	7 × 11¼					4			19	
3 AD	,,	6¾ × 14½	8 × ½ × ⅝	2 × ½ × ½	5¼ × 1	¾ × 1¼	None	3000	½	33	
3 ASD	,,	8½ × 14½					5¼			38	
2 AA	A.C.	6⅝ × 11¼	6 × ⅜ × ½	1½ × ⅜ × ⅜	4½ × ⅜	⅝ × 1	None	3400	¼	22	
2 ASA	,,	8⅜ × 11¼					4½			26	
3 AA	,,	7⅜ × 13	8 × ½ × ⅝	2 × ½ × ½	5¼ × 1	¾ × 1¼	None	3400	½	40	
3 ASA	,,	9⅜ × 13					5¼			45	
2 AU	D.C. or	5½ × 11⅝	4 × ⅜ × ½	1½ × ⅜ × ⅜	4½ × ⅜	⅝ × 1	None	4800	¼	15	
2 ASU	A.C.	7¼ × 11⅝					4¼			19	

Note.—AD, AA, and AU machines are simple tool post machines without slide travel. ASD, ASA, and ASU machines are fitted with slide travel.

Direct Current Machines listed above are regularly wound for 115 and 230 volts. Machines can be supplied for other voltages up to 250 volts at extra cost.

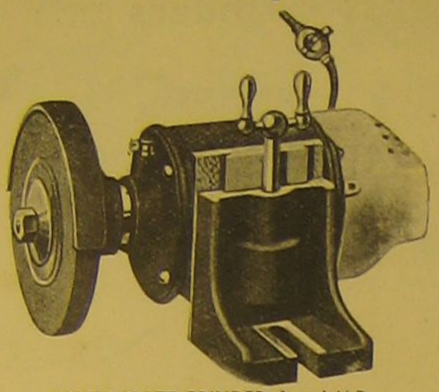
Alternating Current Machines listed above are regularly wound for 110 volts single phase, and 220 volt single, two, or three phase, 60 cycle supply. 50 cycle ratings will be 20 per cent. below those shown above in speed and output. Machines can be supplied for other voltages up to 250 volts at extra cost.

Universal Machines listed above are regularly wound for 110 and 220 volts D.C. or single phase A.C., 25 to 60 cycle supply. Machines can be supplied for other voltages up to 250 volts at extra cost.

When ordering, state full particulars as to voltage, and for A.C., frequency, and whether to operate on single, two, or three phase supply.

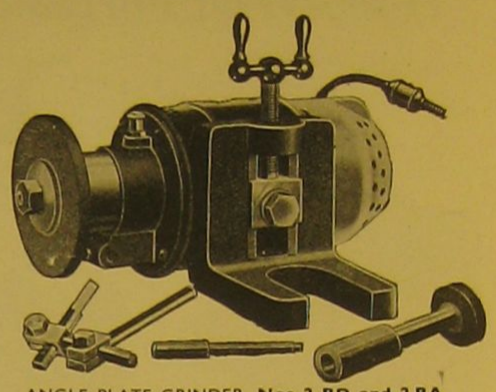
ELECTRIC GRINDERS

Hisey-Wolf Lathe Electric Grinders (Made in U.S.A)



ANGLE PLATE GRINDER, ¼ to 1 H.P.

Heavy Pattern Slide Rest Grinders



ANGLE PLATE GRINDER, **Nos. 2 BD and 2 BA**

Internal Grinding Attachment is supplied only with Types 2 BD, 2 BA, and 2 BU

Designed to be mounted upon the compound slide of lathe, for surface and cylindrical grinding of a heavier and more accurate nature than the Tool Post Grinders on previous page.
Motors are compact, powerful types, and designed especially for this purpose.
Bearings are bronze, and are adjustable to compensate for wear.
The body of motor is mounted upon an angle plate, and has a vertical adjustment ,through worm, to bring it in line with centres.
An Internal Grinding Attachment, which is detachable, is regularly supplied with Types 2 BD, 2 BA, and 2 BU only. The extension is 4½ inches long by ¾ inch diameter, equipped with a grinding wheel 1½ by ⅜ by ⅜ inch hole.
A Tooth Rest Grinding Attachment is furnished with Nos. 2 BD 2 BA, and 2 BU only.
***Equipment includes:**—Grinding wheels as listed, 7 feet of cable and switch, and wheel guards except with Types 2 BD, 2 BA, and 2 BU.

*Sizes Nos. 6 and 8 have 8 feet of cable.

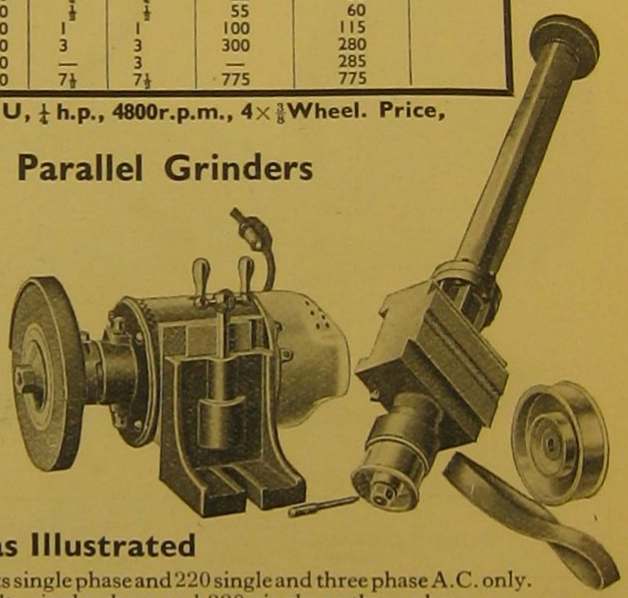
For Direct or Alternating Current—See Note

Types		Dimensions		Grinding Wheels		No Load Speed, r.p.m.		Horse-Power		Weight		Price
Direct	Altern.	D.C.	A.C.	D.C.	A.C.	D.C.	A.C.	D.C.	A.C.	D.C.	A.C.	
		Inches	Inches	Inches	Inches					Lbs.	Lbs.	
2 BD	2 BA	4⅜ × 11½	5½ × 12	4½ × ⅜	6 × ⅜	4500	3500	¼	¼	22	36	
3 BD	3 BA	6 × 14⅝	7 × 13½	8 × ½	8 × ½	3000	3400	½	½	55	60	
4 BD	4 BA	7⅛ × 18½	7⅛ × 16½	10 × 1	10 × 1	2100	1750	1	1	100	115	
6 BD	6 BA	11 × 22 7/16	11 × 22⅝	14 × 1½	14 × 1½	1600	1700	3	3	300	280	
—	6 BA-25 C	—	11 × 22⅝	—	14 × 1½	—	1500	—	3	—	285	
8 BD	8 BA	14 × 32½	14 × 32⅝	20 × 3	20 × 3	1150	1150	7½	7½	775	775	

Universal Grinder for 110 or 220 volts D.C. or A.C.—Type 2 BU, ¼ h.p., 4800r.p.m., 4 × ⅜ Wheel. Price, on application.

Combination Internal and Parallel Grinders

These Grinders are furnished complete for both internal and external grinding.
They are clamped to the compound slide of a lathe, and can be fixed in position in a moment.
For external grinding, the motor housing, with wheel on end of armature shaft, is mounted direct on the angle plate, giving a very rigid support.
For internal grinding, the fixture complete, as shown in the illustration (which represents the ¼ h.p. size—3 BXD), is mounted between the housing and angle plate, being driven from a pulley which takes the place of the grinding wheel on the armature shaft.
The slide travel is 5 inches for Type 4 BXD, 4½ inches for Type 3 BXD, and 1½ inches for Type 2 BXD.
The angle plate and screw for Nos. 3 and 4 BXD is as illustrated here, and for 2 BXD, the ¼ h.p. size, it corresponds to illustration in top right-hand corner of page.
Equipment includes:—7 feet of cable with switch, 2 grinding wheels, and on Nos. 3 and 4 BXD/A wheel guards.



Prices, Complete as Illustrated

Type 2 BXD for 115 and 230 volts, ; **Type 2 BXA** for 110 volts single phase and 220 single and three phase A.C. only.
Type 3 BXD for 115 and 230 volts, ; **Type 3 BXA** for 110 volts single phase and 220 single or three phase.
Type 4 BXD for 115 and 230 volts, ; **Type 4 BXA** for 110 and 220 volts single or three phase.

General Dimensions Direct or Alternating Current—See Note

Types		Dimensions				Grinding Wheels		No Load Speed, r.p.m.				Horse-Power		Weight External Grinding	
		Internal		External		Internal	External	Internal		External					
Direct	Altern.	D.C.	A.C.	D.C.	A.C.			D.C.	A.C.	D.C.	A.C.	D.C.	A.C.	D.C.	A.C.
		Inches	Inches	Inches	Inches	Inches	Inches							Lbs.	Lbs.
2 BXD	2 BXA	*4	*4	4⅜ × 11½	5½ × 12	1½ × ⅜	See Note †	10,000	9000	4500	3500	¼	¼	22	37
3 BXD	3 BXA	*15	*16	6 × 14	7 × 14	3½ × ½	8 × ¾	6,000	6000	3000	3400	½	½	55	60
4 BXD	4 BXA	*15	*17	—	—	4 × ½	10 × 1	5,500	4000	2100	1750	1	1	100	115

*These figures represent the depth to which Standard Internal Extension will grind. †For External Grinding, 2 BXD takes a wheel 4½ × ⅜ in., and 2BXA 6 × ½ in.

Direct Current Machines listed above are regularly wound for 115 and 230 volts. Special windings can be supplied up to 250 volts for ½, ¼, and 1 h.p. machines and up to 500 volts for 3 h.p. machines.
Alternating Current Machines, 2 BA, 3 BA, and 4 BA are regularly wound for 110 volts single phase, and 220 volts single or three phase. 60 cycle (6 BA and 8 BA machines only wound for 220 and 440 volts three phase supply). 50 cycle ratings will be 20 per cent. below those shown above in speed and output. Machines can be supplied for other voltages up to 250 volts for 2 BA and 2 BXA machines, and up to 550 volts for 3 BA, 4 BA, and 3 BXA machines, also up to 440 volts on 6 BA and 8 BA machines.
Other windings can be supplied at extra cost.

When ordering, state full particulars as to voltage, and for A.C., cycles, and whether single, two, or three phase supply.

Section 3

Precision Tools for Engineers

- Micrometers
- Gauges
- Squares
- Protractors
- Combination Sets
- Surface Plates and Marking-off Tables
- Verniers
- Calipers and Dividers
- Feeler, Drill, Tap and Wire Gauges
- Dial Gauges
- Speed and Production Watches and Counters

INFORMATION and DATA useful to ENGINEERS is given at the end of this Catalogue.

Slocomb Micrometer Calipers (Made in U.S.A.)

Features of the Slocomb Micrometers

Arrangement of nuts insuring long bearing in spite of wear.

Short nut—D to compensate for wear in threads.

No split in sleeve to admit dust and dirt and cause rapid wear.

Nut—C 5/8" long, twice as long as bearing in other micrometers. Can be replaced when worn.

.270" diameter screw and anvil. This gives 16½% more wearing surface at this point than .250" diam.

Solid inserted anvil—G.

I section frame—B drop forged from bar steel.

Decimal equivalents stamped on thimble.

F—Thimble.

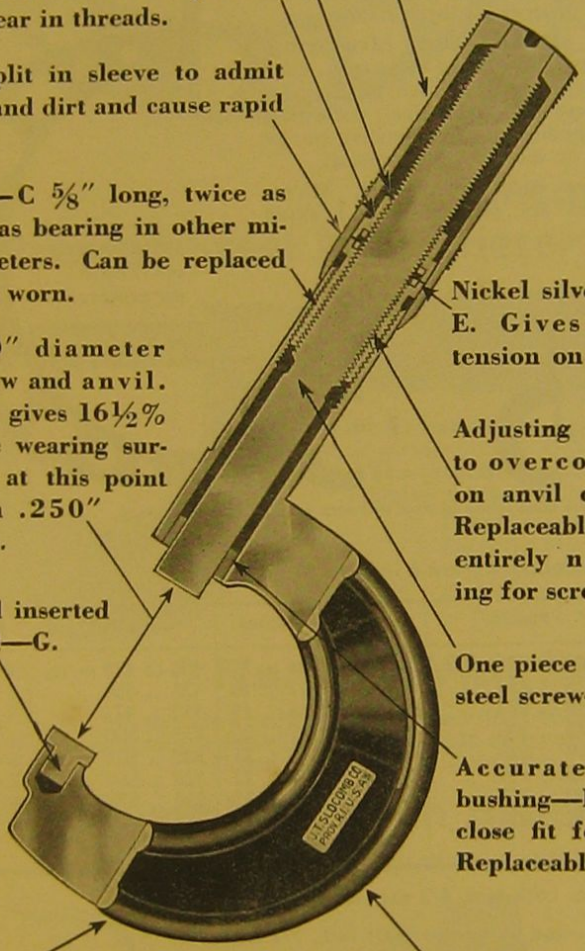
Nickel silver spring E. Gives uniform tension on screw.

Adjusting nut—C to overcome wear on anvil or screw. Replaceable, giving entirely new bearing for screw.

One piece hard tool steel screw—A.

Accurately fitting bushing—H insures close fit for screw. Replaceable.

Black enameled or polished frame.



Friction Stop

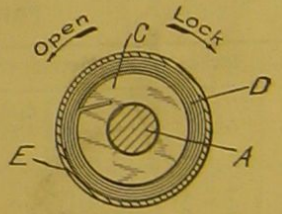
This device consists chiefly of a coiled flat spring D of german silver. The inner end of this spring is attached to washer C which is clamped to end of thimble by shoulder on central crew A. The outer end slides round inside the large bore in outer revolving part; so arranged that in turning to the right the device slides over the spring, but in turning to the left the friction uncoils the spring, causing it to drive positively in this direction.

This device has no parts that are liable to get out of order, and allow for a large and substantial screw for attaching; also allows of reducing the knurled part to small diameter, so as to provide a speeder as well.

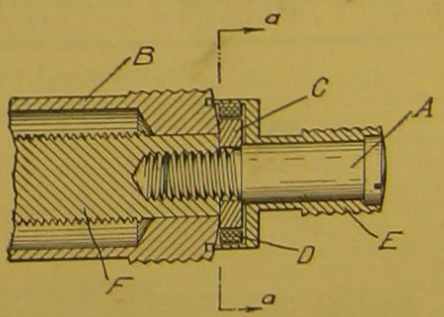
The german silver spring does not require lubrication, and, as there is so much of it, it will not wear so as to lose its tension.

Another advantage is in the absence of click, which makes such a device rough in its action, and does not stop so positively as this friction device.

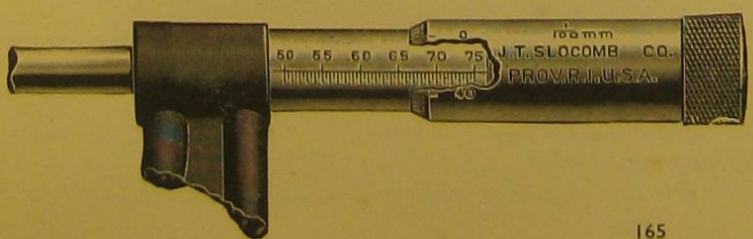
Extra on any Micrometer ... 2/1



Section at a-a



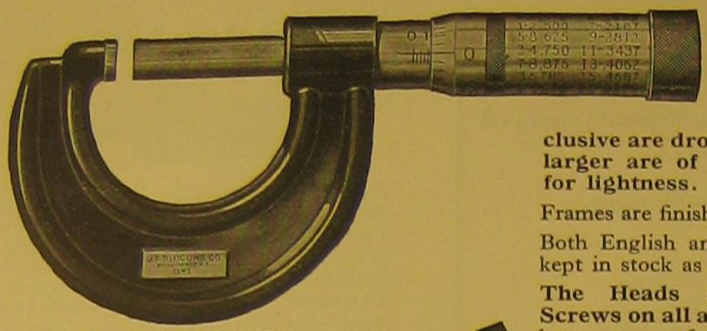
Metric Sizes



The illustration shows the graduations on the barrel of a Micrometer for measuring 50 to 75 millimetres. It will be noticed that each division of 5 millimetres on the sleeve is marked to show the **actual** size in millimetres at that point. **This makes the Slocomb Metric Micrometer exceedingly easy to read.**

It will be noticed that Micrometers for metric measurements are made for all sizes to 600 millimetres inclusive, and can be made for larger sizes when desired.

Slocomb Micrometer Calipers (Made in U.S.A.)



No. 25. 1 INCH MICROMETER

We list here Slocomb Micrometers which, with the exception of the ½ inch size, have a range of one inch or 25 m/m for each size, covering all sizes to 24 inches or 600 m/m inclusive.

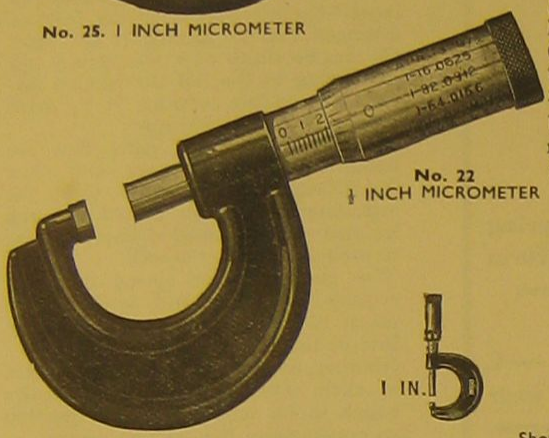
The Frames on sizes from 1 to 9 inches inclusive are drop-forged from bar steel, and sizes 10 inches and larger are of high-grade steel castings with holes through for lightness.

Frames are finished in black enamel.

Both English and Metric sizes are kept in stock as listed below.

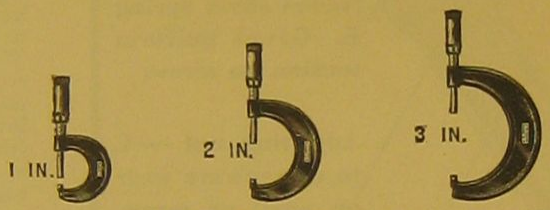
The Heads and Measuring Screws on all are the same. Each has a range of 1 inch or 25 m/m (except the ½-inch size), according to whether the Micrometer be for inch or metric measurement.

Unless specially ordered, Micrometers are sent without Friction Stop.



No. 22
½ INCH MICROMETER

STYLE for 10, 11 and 12 INCH MICROMETER



Showing the comparison of sizes in 1 inch to 12 inch Micrometers.

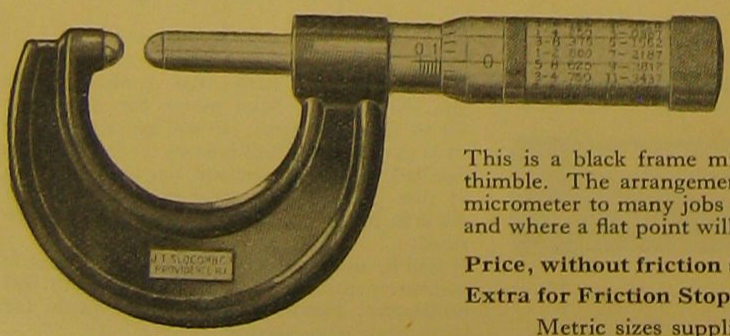
PRICE LIST.—Micrometer Calipers from ½ inch to 24 inches.

No.	Inches	Metric	Price	Inches	Metric	Price	Inches	Metric	Price
22	0 to ½	0 to 13 m/m.	£1 3 0	8 to 9	200 to 225 m/m.	£2 14 3	16 to 17	400 to 425 m/m.	£4 15 9
25	0 ,, 1	0 ,, 25 ,,	1 6 0	9 ,, 10	225 ,, 250 ,,	2 18 3	17 ,, 18	425 ,, 450 ,,	5 4 3
27	1 ,, 2	25 ,, 50 ,,	1 9 3	10 ,, 11	250 ,, 275 ,,	3 2 6	18 ,, 19	450 ,, 475 ,,	5 12 6
28	2 ,, 3	50 ,, 75 ,,	1 12 3	11 ,, 12	275 ,, 300 ,,	3 6 9	19 ,, 20	475 ,, 500 ,,	6 5 0
—	3 ,, 4	75 ,, 100 ,,	1 15 6	12 ,, 13	300 ,, 325 ,,	3 10 9	20 ,, 21	500 ,, 525 ,,	6 17 6
—	4 ,, 5	100 ,, 125 ,,	1 18 6	13 ,, 14	325 ,, 350 ,,	3 15 0	21 ,, 22	525 ,, 550 ,,	7 10 0
—	5 ,, 6	125 ,, 150 ,,	2 1 9	14 ,, 15	350 ,, 375 ,,	3 19 3	22 ,, 23	550 ,, 575 ,,	8 2 6
—	6 ,, 7	150 ,, 175 ,,	2 5 9	15 ,, 16	375 ,, 400 ,,	4 7 6	23 ,, 24	575 ,, 600 ,,	8 15 0
—	7 ,, 8	175 ,, 200 ,,	2 10 0						

Friction Stop, **2/1** each for any size. Lock Nut, **4/2** each extra for any size.

Sizes 1 to 6 inches inclusive graduated to read to ·0001 inch, **7/3** extra.

Slocomb Micrometer Caliper No. 25 (Made in U.S.A.)



With Ball Point on Anvil and Spindle

Range 0 to 1 inch.

This is a black frame micrometer with decimal equivalents stamped on the thimble. The arrangement of the ball pointed anvil and spindle adapts this micrometer to many jobs where it is necessary to measure on a curved surface and where a flat point will not do.

Price, without friction stop **£1 14 6**

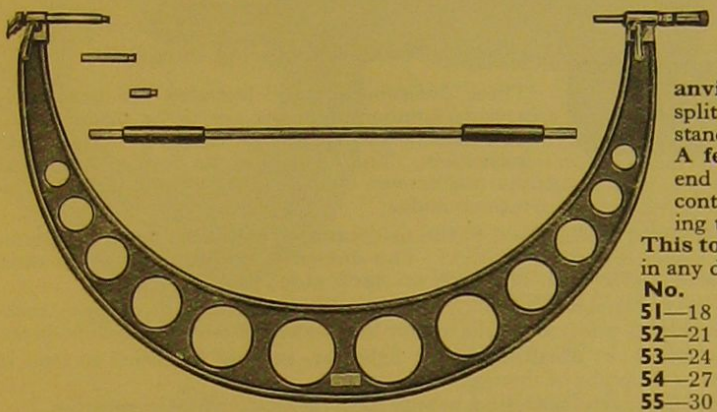
Extra for Friction Stop **0 2 1**

Metric sizes supplied at same prices as English Equivalents.

MICROMETER CALIPERS

Slocomb Large Micrometers (Made in U.S.A.)

Sizes 18 to 36 ins. have 3 inch range. **Sizes 36 to 60 ins. have 6 inch range.**



The illustration shows a Slocomb Micrometer made in sizes above 18 inches. The frame is a steel forging. **Each tool is provided with three end measure anvils,** a 1-inch, 2-inch, and 3-inch, which are held by split clamp and rest against adjusting screw; also one standard end measure as shown in illustration.

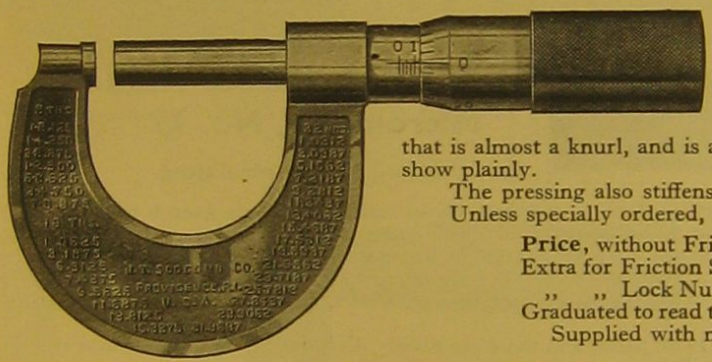
A feature of this tool is in the gap, allowing face of end measure and adjusting screw to be wiped clean before contact is made, and then allowing for inspection by sighting through at any time.

This tool is also provided with clamp for locking spindle in any desired position. The frame is finished in black enamel.

No.		No.	
51—18 to 21 ins.	£10 8 3	56—33 to 36 ins.	£25 0 0
52—21 ,, 24 ,,	12 10 0	57—36 ,, 42 ,,	37 10 0
53—24 ,, 27 ,,	14 11 9	58—42 ,, 48 ,,	50 0 0
54—27 ,, 30 ,,	16 13 3	— 48 ,, 54 ,,	63 13 3
55—30 ,, 33 ,,	20 16 9	— 54 ,, 60 ,,	83 6 9

Metric sizes supplied at same prices as English equivalents.

Slocomb
Pressed Steel Micrometer, No. 26 Range 0 to 1 inch (Made in U.S.A.)



This Caliper, like the other Slocomb Micrometers, is drop-forged from bar steel. It is then highly polished and next pressed in polished dies under a hydraulic pressure of 300 tons to the square inch, raising the figures showing decimal equivalents.

The raised edges and figures make a surface that is almost a knurl, and is a good finger hold. The figures are always bright, and show plainly.

The pressing also stiffens the frame materially.

Unless specially ordered, micrometers are sent without friction stop.

Price, without Friction Stop	£1 11 3
Extra for Friction Stop	0 2 1
,, ,, Lock Nut	0 4 2
Graduated to read to ·0001 inch ... ... extra	0 7 3

Supplied with metric reading at same prices as given.

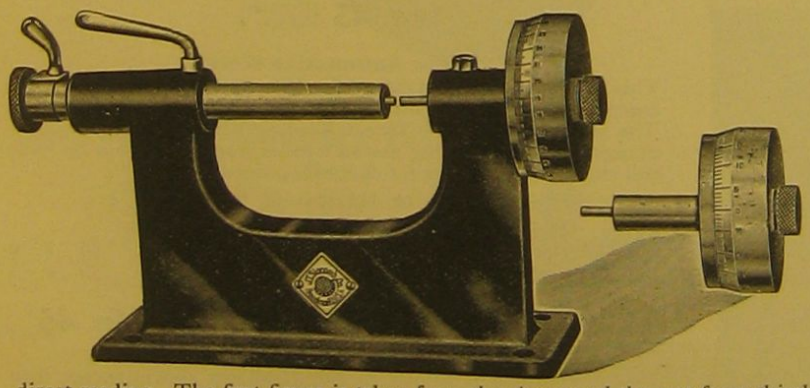
No. 26—With Friction Thimble

In principle this Micrometer is similar to the Pressed Steel Micrometer above, but here the thimble has a sleeve which slips when more than a certain pressure is applied. **It is right under your thumb.**

Price, with Friction Thimble **£1 15 6**

Slocomb Six-Inch Bench Micrometer Caliper (Made in U.S.A.)

With Interchangeable Measuring Heads



This Micrometer has a range from 0 to 6 inches and is provided with two interchangeable measuring heads. **One of these is graduated to read in ten-thousandths of an inch direct off the thimble,** has a very accurate screw, and is suitable for making gauges or in any work where extra fine measurements are required. **The other head has a 10 pitch screw, is graduated to measure in thousandths of an inch,** and is intended for work where rapid measuring is required to a degree of accuracy of one-quarter of a thousandth.

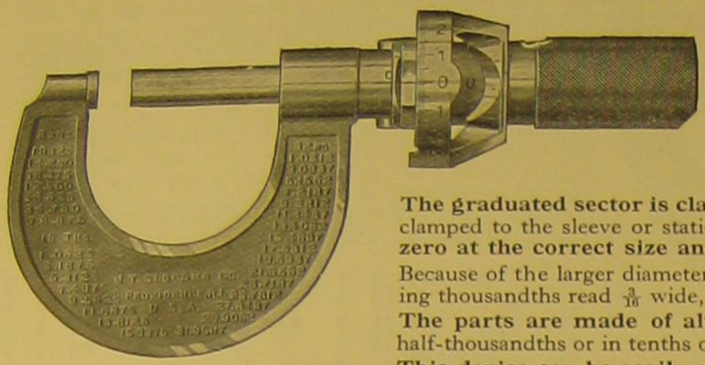
The thimbles are made of aluminium 4 inches in diameter, making the graduations coarse. The quick-acting head is direct reading. The first figure is taken from the sleeve and the rest from thimble.

Lines and figures are large so readings can be made two or three feet away. The anvil has two adjustments, first sliding through split clamp in frame, and second by fine screw adjustment through centre.

Price, with two heads	£33 6 9
Price, with one head	26 0 9
Price, heads only, each	10 8 3

Price of set of end measures, 1 to 6 inches inclusive, extra **£2 0 6**

Slocomb Quantity Production Micrometers, Nos. 25 and 26 (Made in U.S.A.)



No. 26. ALL METAL FINISH FRAME

For Manufacturing Purposes

These Micrometers are intended for use where a large number of pieces are to be made of one size—saving eyestrain and ensuring accuracy in inspection. The removal of the device so as to use the micrometer in the regular way at times is not recommended.

The graduated sector is clamped to the micrometer thimble, and the indicator clamped to the sleeve or stationary part. **The device is so adjusted as to read zero at the correct size and ·002 inch on each side, plus or minus.**

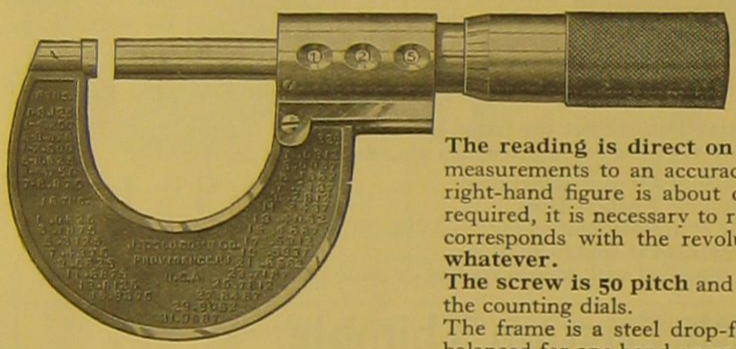
Because of the larger diameter the width of graduation is increased three times, making thousandths read $\frac{3}{16}$ wide, and allowing for the reading of ten-thousandths direct. **The parts are made of aluminium** for lightness, and are furnished to read in half-thousandths or in tenths of thousandths.

This device can be easily attached to any size of Slocomb Micrometer.

No. 25 is a black frame Micrometer with decimal equivalents stamped on thimble.

No. 26 is all metal finish with decimal equivalents raised on frame.

No.	25	26
Price, graduated to ·0005 in.	£1 10 3	£1 15 6
Price, graduated to ·0001 in.	1 12 3	1 17 6
Extra per tool for Friction Stop	0 2 1	0 2 1



Slocomb Direct Reading Micrometer, No. 35 (Made in U.S.A.)

Saves Time—Saves Calculating

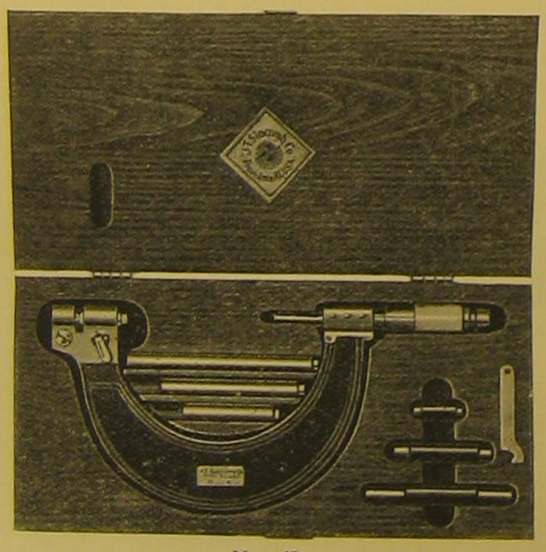
The reading is direct on every thousandth and reads from 0 to 999. For measurements to an accuracy of ·0005 inch, it is only necessary to see that the right-hand figure is about central in its aperture. Where greater refinement is required, it is necessary to refer to the nearest line on the thimble and see how it corresponds with the revolution line on sleeve, but **there is no calculating whatever.**

The screw is 50 pitch and there are twenty divisions on the thimble and also on the counting dials.

The frame is a steel drop-forging with decimal equivalents. The tool is nicely balanced for one hand operation. 1-inch size only.

Supplied only in Morocco Case.

Price, No. 35 Micrometer only	**£3 8 9**
Price, Morocco Case only	**0 4 2**



No. 45

Slocomb Direct Reading Micrometer, No. 45 (Made in U.S.A.)

For Automotive Work

This Micrometer, with range from 0 to 4 inches inclusive, is especially designed for automotive repair and regrinding work. The set consists of one Direct Reading Micrometer, four interchangeable anvils, giving measurements from 0-4 inches by ·001, and three end measures for checking purposes.

Supplied only in Hardwood Case

Price, No. 45 Micrometer, complete with Friction Stop, without case	**£6 7 0**
Price, Hardwood Case only	**0 6 3**

Slocomb Micrometer Caliper, No. 46

(Made in U.S.A.)

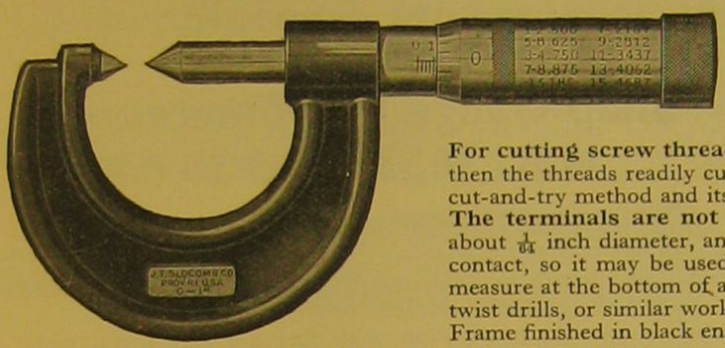
This Micrometer is similar to No. 45 shown above, except that it has an ordinary micrometer head instead of the direct reading feature.

Supplied only in Hardwood Case

Price, No. 46, Micrometer, complete with Friction Stop, without case	**£4 4 6**
Price, Hardwood Case only	**0 6 3**

MICROMETER CALIPERS

Slocomb Screw Thread Micrometer, No. 29 (Made in U.S.A.)



This Caliper will not measure the actual diameter of a **V** thread screw, but for purposes of comparison it has a wide range of uses.

It is valuable for making a tap same diameter as some other tap or screw, or a few thousandths larger or smaller.

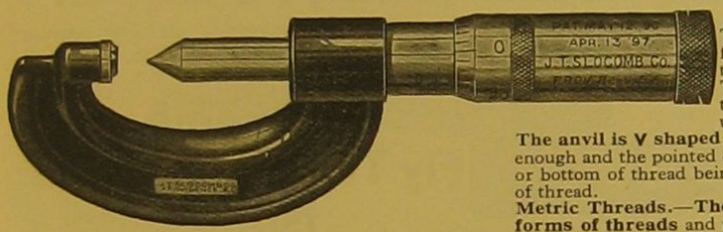
For cutting screw threads in the lathe to fit nuts the tap may be measured and then the threads readily cut to the same size and to fit nuts, without the common cut-and-try method and its consequent loss of time.

The terminals are not made to a sharp point, but instead are flatted to about $\frac{1}{64}$ inch diameter, and the tool is adjusted to 0 when these flat points are in contact, so it may be used same as any other micrometer, when it is desired to measure at the bottom of a groove or a small recess, the thickness in the centre of twist drills, or similar work.

Frame finished in black enamel.

No. 29 A, 0 to 1 inch, **£1 9 2**; **No. 29 C,** 1 to 2 inches, **£1 13 3**; **No. 29 E,** 2 to 3 inches, **£1 17 6**
Friction Stop, **2/1** extra, any size.

Slocomb Screw Thread Micrometers, No. 30 (Made in U.S.A.)



For Whitworth Standard Threads

These Screw Thread Micrometers provide the best means known for the accurate measuring of screw threads, whether it be on taps, screws, bolts or any other form having a screw thread.

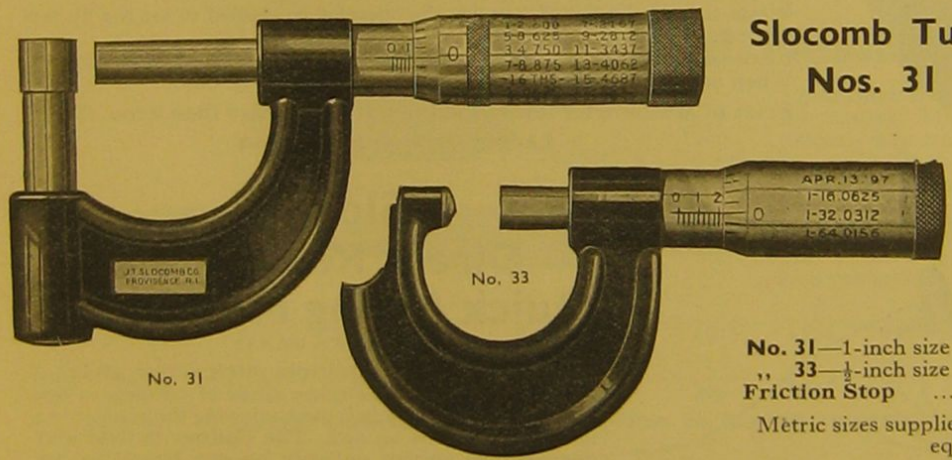
The Slocomb Micrometer is especially adapted on account of all the adjustments being made inside the thimble and a solid anvil is used, which is much more reliable than when this piece is fitted loose.

The anvil is V shaped, and the end of the screw pointed. The V in the anvil is sharp enough and the pointed end of the screw flatted enough so that they will not rest on the top or bottom of thread being measured, but instead will rest only on the angle or cut surface of thread.

Metric Threads.—These Micrometers can be specially made for metric and other forms of threads and pitches. Prices quoted against requirements.

No. 30 C, capacity	0 to 1 in.,	range	14 to 8 pitch			**£1**	**17**	**6**	**No. 30 L,** capacity 1 to 2 ins., range	4½ to 7 pitch	**£2 3 9**
,, **30 E** ,,	0 ,, 1 ,,	,,	14 ,, 20 ,,			**1**	**17**	**6**	,, **30 M** ,,	1 ,, 2 ,, ,,	8 ,, 13 ,, **2 3 9**
,, **30 G** ,,	0 ,, 1 ,,	,,	22 ,, 30 ,,			**1**	**17**	**6**	,, **30 P** ,,	2 ,, 3 ,, ,,	6 ,, 10 ,, **2 5 9**
,, **30 J** ,,	0 ,, 1 ,,	,,	32 ,, 40 ,,			**1**	**17**	**6**			

Slocomb Tube Micrometers Nos. 31 and 33 (Made in U.S.A.)



These Tools are intended for measuring the walls of tubes, the distance from the edge of a piece, and other similar work. The Anvil on the No. 31 will enter a $\frac{3}{8}$-inch diameter hole to a depth of $\frac{3}{4}$ inch, and the No. 33 a $\frac{3}{8}$-inch diameter hole, $\frac{3}{8}$ inch deep.

No. 31—1-inch size **£1 11 3**
,, **33**—½-inch size **1 3 0**
Friction Stop ... ... extra **2/1**

Metric sizes supplied at same prices as English equivalents.

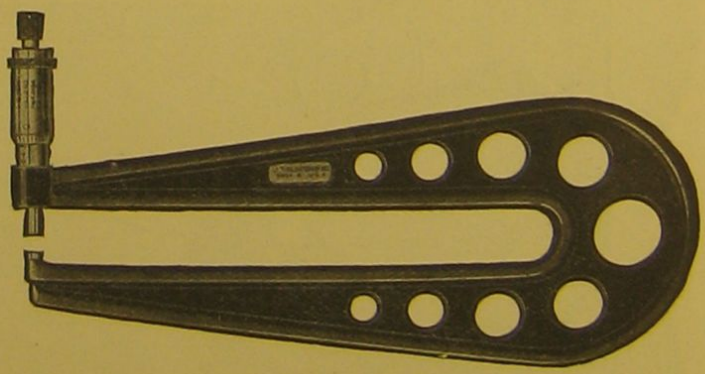
Slocomb Rolling Mill Micrometer Calipers (Made in U.S.A.)

¼ inch with 3 ins. Gap.
½ inch with 6 ins. Gap.
1 inch with 9 ins. Gap.

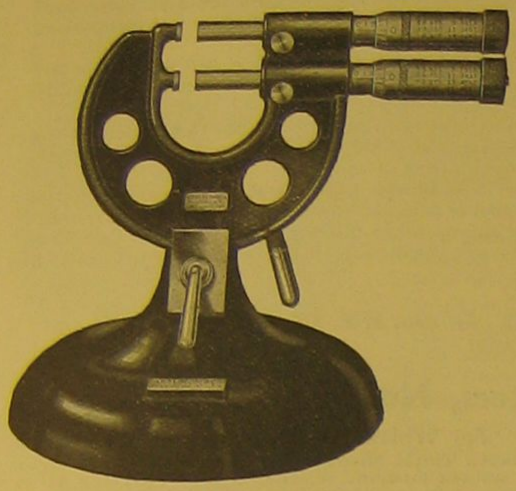
These Calipers with deep throats for measuring sheet metal have black frames and are graduated to read in thousandths inch.

Size ½ in. with 3 in. Gap—
Price **£1 13 3**
With Friction Stop **1 15 3**
Size ½ in. with 6 ins. Gap—
Price, with Friction Stop **2 5 9**
Size 1 in. with 9 ins. Gap—
Price, with Friction Stop **2 14 3**

Metric sizes can be supplied at same prices as English Equivalents.



SHOWING A 6 INCH GAP ROLLING MILL MICROMETER



Slocomb Snap Gauge Micrometers Nos. 36, 37 and 38 (Made in U.S.A.)

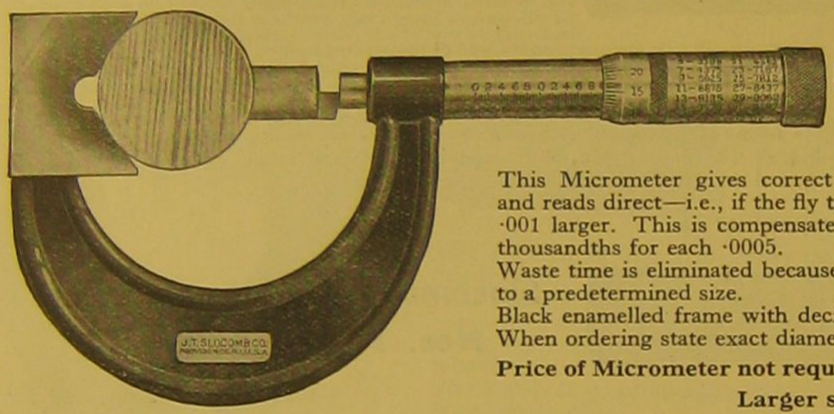
These Micrometers are adjustable and are designed to replace a large number of snap or limit gauges.

They are fitted with two micrometer screws which can be set to standard test pieces and then securely locked in position.

As time-savers in production work they are very useful tools. The minimum limit screw can be locked and the other one left to rotate freely, so that the high limit may be accurately ascertained.

No.	**36**	**37**	**38**
Range, ins.	0 to 1	1 to 2	2 to 3
Price, each, without Stand ...	**£4 7 6**	**£5 2 0**	**£5 16 9**

A **Stand** for holding this Snap Gauge Micrometer and the regular Slocomb Micrometers can be furnished, when desired. **Price, 29/9 each**



Slocomb Fly Tool Micrometer No. 50 (Made in U.S.A.)

This Micrometer gives correct measurement of fly tool before boring, and reads direct—i.e., if the fly tool is raised ·0005, the bar will bore a hole ·001 larger. This is compensated for by having the thimble graduated in thousandths for each ·0005.

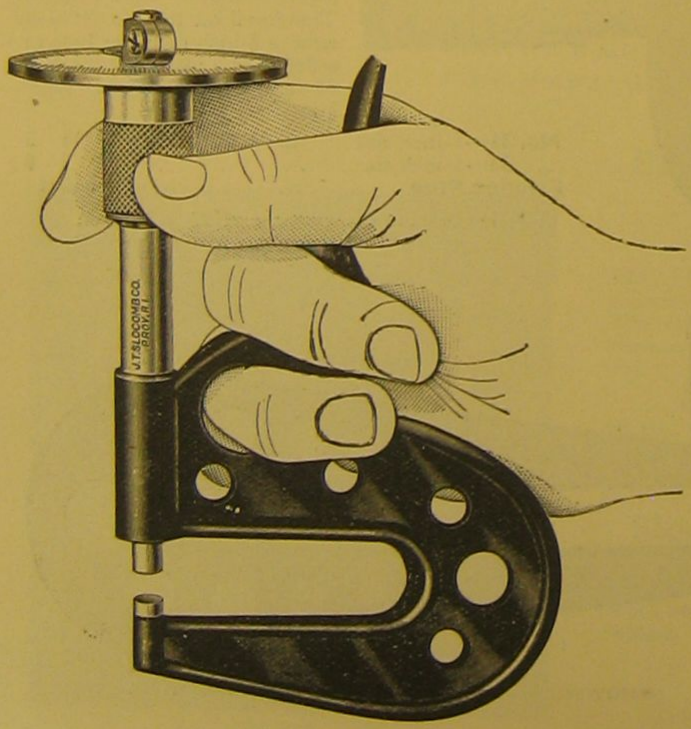
Waste time is eliminated because the operator is enabled to set the fly tool to a predetermined size.

Black enamelled frame with decimal equivalents stamped on thimble.

When ordering state exact diameter of boring bar to be used.

Price of Micrometer not requiring a frame larger than 2 ins. £2 14 3

Larger sizes on application



Slocomb Direct Reading and Quick Acting Micrometer

(Made in U.S.A.)

This Caliper has a multiple pitch screw giving a lead of ¼ inch, the complete range of Caliper, so one revolution of screw only is used, allowing the graduations to be in one circle on dial. **The Caliper is held and operates as shown entirely by one hand,** leaving the other to handle the work being measured. It measures on a sheet 2⅜ inches or to the centre of a 4¾-inch sheet. The dial revolves but the pointer and spindle do not.

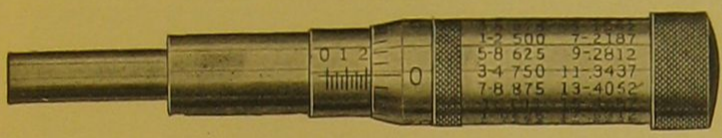
This Caliper can be fitted with friction thimble so that different people always get the same measurement. This feature is principally valuable when measuring on soft material.

Made with large measuring terminals, it is successfully used in rubber mills for measuring sheet rubber, for accurately measuring the thickness of card clothing, for measuring cloth, paper, and with small terminals as a sheet metal gauge. Can be furnished, to order, with a lighter frame measuring on a sheet 1 inch only.

Price, without Friction Thimble, reading to ·001 inch	**£4 3 6**
Price, fitted with Measuring Terminals ¾-inch diameter for measuring soft material	**5 0 0**
Ditto, with Friction Thimble	**5 8 3**

MICROMETERS, END MEASURES & CASES

Slocomb Micrometer Heads, No. 32 (Made in U.S.A.)



These Micrometer Heads are useful for purposes of fine adjustments in tools or machines. They are intended to be fastened by sweating in with soft solder or split clamp.

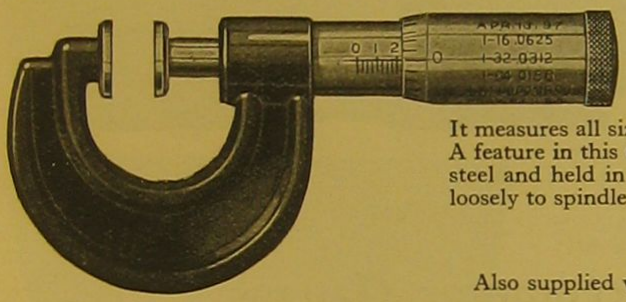
The diameter A on the ½-inch head is ⅜ inch and the length is 15/32 inch from end of barrel to shoulder. The diameter A on the 1-inch head is 7/16 inch and the length is ¾ inch from end of barrel to shoulder.

Regularly graduated to read in thousandths of an inch, but 1 inch size can be furnished to read in ten-thousandths of an inch.

No. 32 A—½ inch ... ... **each** **14/6**
,, 32 C—1 inch ... ... **,,** **16/9**
Friction Stop ... ... **extra 2/1**

Metric sizes supplied at same prices as English equivalents

Slocomb Micrometer Caliper, No. 24 For Paper (Made in U.S.A.)



This Micrometer is intended for measuring paper or other soft material, and has a large anvil and a wide cap on the screw, so that when in use it has more bearing on the article being measured.

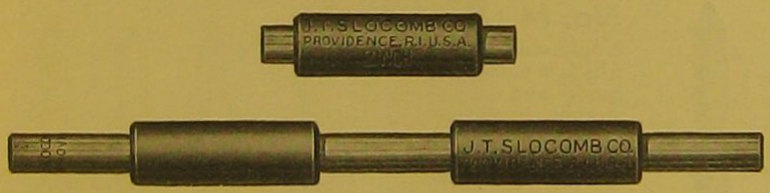
The Frame is drop-forged from tool steel and black enamelled. It measures all sizes from 0—·350 inch by thousandths of an inch.

A feature in this Caliper is the removable cap on spindle. This cap is of hardened steel and held in place by a small screw passing through, and is fitted somewhat loosely to spindle so that it can conform to irregular surface of work.

Price without Friction Stop ... **£1 9 2**
Extra for Friction Stop **0 2 1**

Also supplied with metric reading at same prices as above.

Slocomb Standard End Measures (Made in U.S.A.)



These End Measures are particularly designed for testing Micrometers and keeping them properly adjusted. Sizes to 12 inches inclusive are made from tool steel ·310 diameter, large sizes 7/16 inch diameter.

Ends are carefully hardened, ground, and lapped. To avoid changes in temperature due to handling, the rods are protected by non-heat conducting covers.

Sizes ...	1	2	3	4	5	6	7	8	9	10	11	12 ins.
Price ...	**4/3**	**5/3**	**6/3**	**7/3**	**8/3**	**9/6**	**10/6**	**11/6**	**12/6**	**13/6**	**14/6**	**15/9 each**
Size ...	13	14	15	16	17	18	19	20	21	22	23	24 ins.
Price ...	**17/9**	**18/9**	**19/9**	**20/9**	**22/–**	**23/–**	**26/–**	**29/3**	**32/3**	**35/6**	**38/6**	**41/9 each**

Metric sizes supplied at same prices as English equivalents.

Slocomb Micrometer Pocket Cases

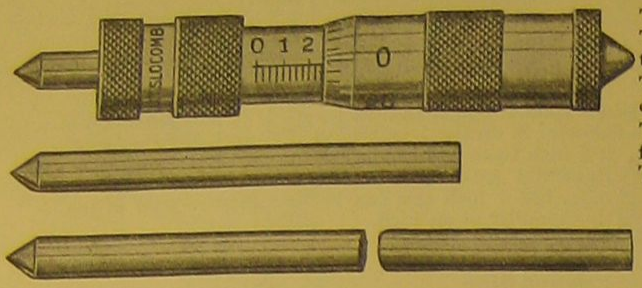
(Made in U.S.A.)

Leather Covered, Velvet Lined

These Cases are intended to hold single micrometers. They are covered with genuine morocco leather and velvet lined.

No. 61, for 1-inch micrometers ... **5/9 each**
,, 62, ,, 2 ,, ,, ... **7/3 ,,**
,, 63, ,, 3 ,, ,, ... **8/9 ,,**
,, 64, ,, 4 ,, ,, ... **13/– ,,**
,, 65, ,, 5 ,, ,, ... **14/6 ,,**
,, 66, ,, 6 ,, ,, ... **17/3 ,,**

Slocomb Inside Micrometer Gauges, No. 11 (Made in U.S.A.)



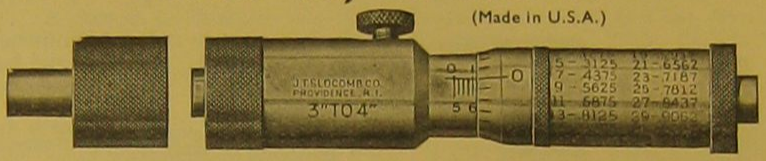
This Tool is intended to measure inside diameters above 2½ inches. The micrometer screw has a range of ¼ inch and is graduated to thousandths of an inch.

The four extension rods that accompany this caliper are $\frac{5}{32}$ inch diameter and are held by split clamp chuck in any desired position. **These rods are not graduated,** the caliper being intended for comparisons, for making small allowances in making fits, etc. The rods furnished measure to 9 inches.

Price, complete with four rods **9/6**
No. 1 Extension, 6½ inches long ... ... **extra 5/3**
,, 2 ,, 14 ,, ,, ... ,, **6/3**

Slocomb Inside Micrometers Nos. 15, 16 and 17

(Made in U.S.A.)



The same exclusive features of other Slocomb Micrometers are embodied in these tools, which are made in three sizes.

No. 15. Measures from 3 to 4 inches by ·001 inch. Furnished with two caps, one giving measurements from 3 to 3½ inches, the other from 3½ to 4 inches.

No. 16. Measures from 4 to 5 inches by ·001 inch, and has one cap.

No. 17. Measures from 5 to 6 inches by ·001 inch, and is provided with one cap.

Price, each, Nos. 15, 16, or 17 ... ... **£1 9 3**

Slocomb Combination Micrometer Gauges (Made in U.S.A.)

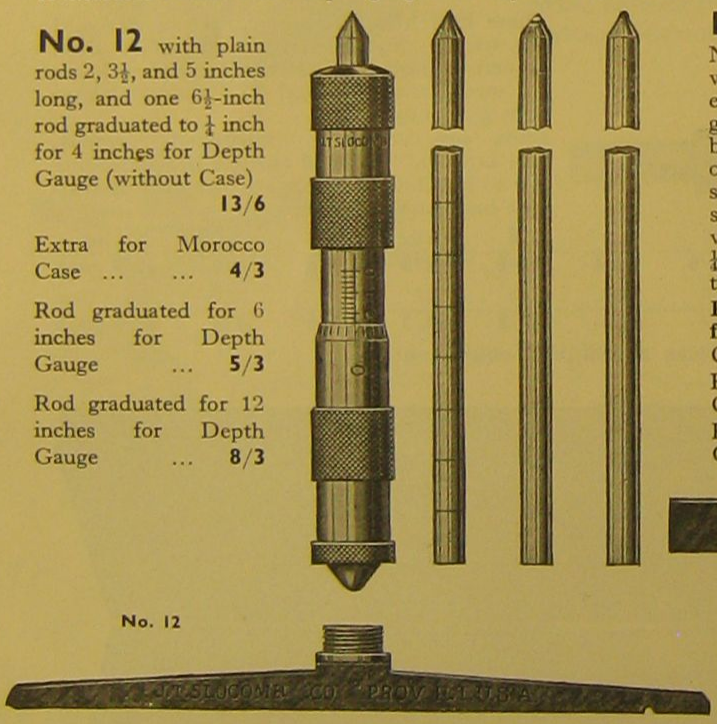
These Gauges consist of a micrometer body and three plain rods similar to the Inside Micrometer Gauges No. 11, but the fourth rod is graduated, as shown, in ¼-inch divisions for use with the depth gauge attachment.
It measures standard as a depth gauge but only allowances or differences as an inside caliper.

No. 12 with plain rods 2, 3½, and 5 inches long, and one 6½-inch rod graduated to ¼ inch for 4 inches for Depth Gauge (without Case) **13/6**

Extra for Morocco Case **4/3**

Rod graduated for 6 inches for Depth Gauge ... **5/3**

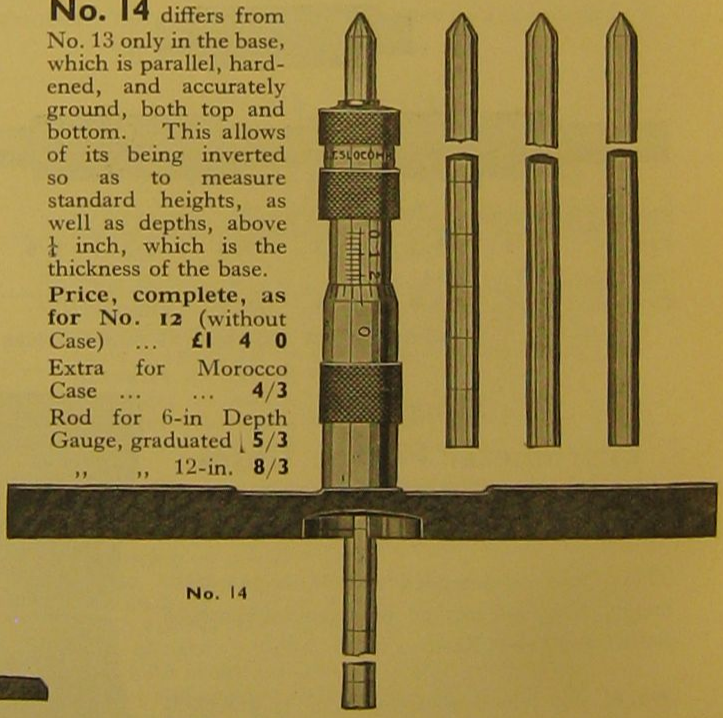
Rod graduated for 12 inches for Depth Gauge ... **8/3**



No. 12

No. 14 differs from No. 13 only in the base, which is parallel, hardened, and accurately ground, both top and bottom. This allows of its being inverted so as to measure standard heights, as well as depths, above ¼ inch, which is the thickness of the base.

Price, complete, as for No. 12 (without Case) ... **£1 4 0**
Extra for Morocco Case **4/3**
Rod for 6-in Depth Gauge, graduated **5/3**
,, ,, 12-in. **8/3**

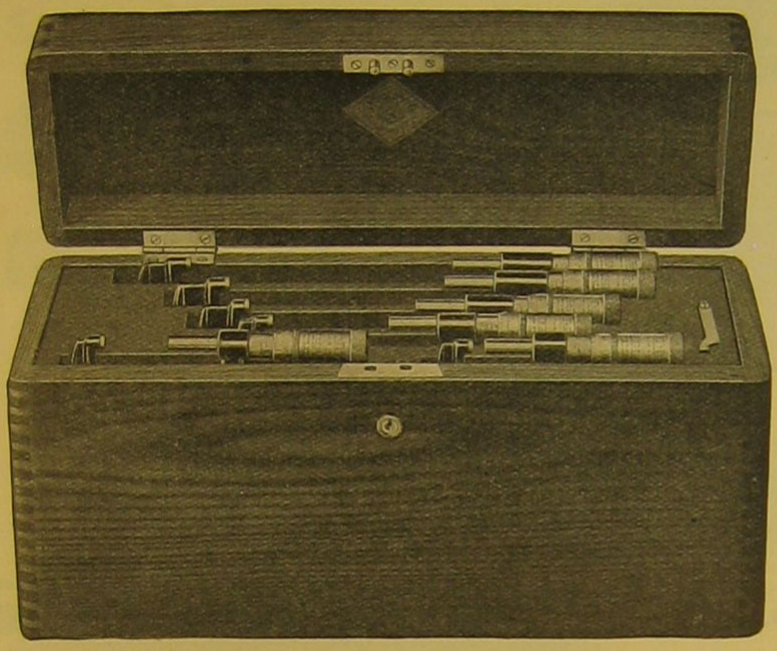


No. 14

No. 13 differs from No. 12 only in graduated rod, with a locating line in base to match, so as to make the depth gauge more accurate. See No. 14.

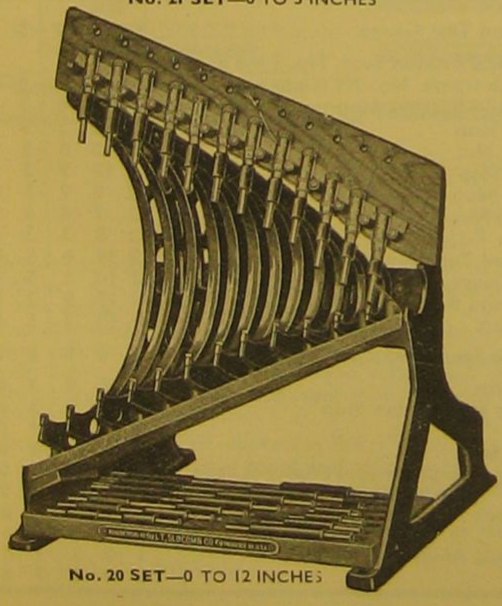
The graduated rod has lines running completely round. It must be fitted to the base in which it is used.

Price, complete, as for No. 12 (without Case) ... **18/9**
Extra for Morocco Case **4/3**
Rod for 6-in. Depth Gauge, graduated **5/3**
,, 12-in. ,, ,, ,, ... **8/3**



No. 19 SET—0 TO 6 INCHES

No. 21 SET—0 TO 3 INCHES



No. 20 SET—0 TO 12 INCHES

Slocomb Sets of Micrometers

(Made in U.S.A.)

Set No. 18

Range of three Micrometers, 0 to 3 inch, graduated to read to ·001 inch. In substantial case, covered with morocco leather and velvet lined.

Price, Set of Three Micrometers without case ... £4 5 5
Leather Case only, extra ... 0 10 5

Set No. 19

Consisting of 1, 2, 3, 4, 5, and 6-inch Micrometers, as shown, mounted in case of quartered oak, beautifully finished, having lock and key.

Price, Set of Six Micrometers without case ... £9 7 6
Oak Case only, extra ... 2 1 8

Set No. 20

Consists of twelve Micrometers with range from 0 to 12 inches, and twelve End Measuring Rods of similar capacity, and is a very serviceable set for tool-room or general shop use. Mounted as shown, in a rack of oak with cast-iron sides, black enamelled.

The partitions are rubber buttons, to prevent injury to the tools, and hooks are provided for workmen's checks.

Price, Set of Twelve Micrometers and End Measuring Rods, without Rack £32 3 9
Rack only, extra 1 19 7

Set No. 21

Is similar to No. 18 but is mounted in a flat, velvet-lined, morocco-covered case, as here illustrated.

Price, Set of Three Micrometers without case ... £4 5 5
Leather Case only, extra 0 10 5

Set No. 22

Is similar to No. 20 but is mounted in a handsome quartered oak case. The End Measures are mounted in a separate case, which fits into a slot in the front of the larger case.

The case is provided with a good lock, and closes tightly.

Price, Set of Twelve Micrometers and End Measuring Rods, without case £31 5 0
Oak Case only, extra 4 3 4

Set No. 23

Consists of four Micrometers with range 0 to 4 inches. Furnished in substantial morocco leather-covered, velvet-lined case.

Price, Set of Four Micrometers without case ... £6 1 11
Leather Case only, extra 0 16 8

Set No. 24

Consists of six Micrometers and six End Measures with a range from 12 to 18 inches inclusive. They are all mounted in rack similar to No. 20.

Price, Set of Six Micrometers and End Measuring Rods, without Rack £30 0 0
Rack only, extra 3 6 8

Set No. 26

Consists of six Micrometers and six End Measures with a range from 18 to 24 inches inclusive. Mounted in rack similar to No. 20.

Price, Set of Six Micrometers and End Measuring Rods, without Rack £50 16 8
Rack only, extra 3 6 8

Set No. 28

Comprising twelve Micrometers and twelve End Measures, range from 12 to 24 inches inclusive. Mounted in rack as No. 20.

Price, Set of Twelve Micrometers and End Measuring Rods, without Rack £81 5 0
Rack only, extra 4 3 4

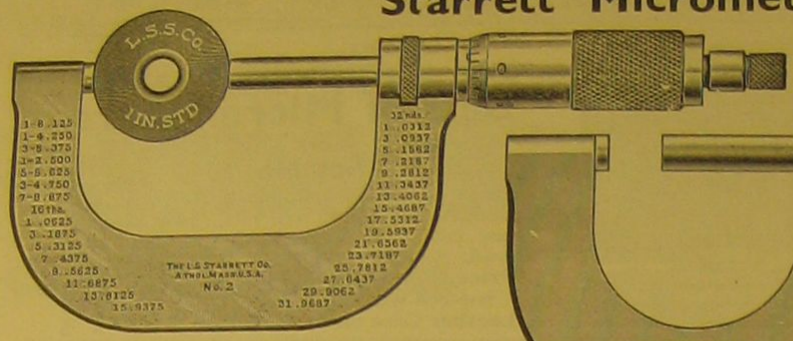
All the above sets are supplied without friction stops unless otherwise ordered.

Price of Friction Stops, 2/1 each extra per micrometer. If graduated to read to ·0001, 7/3 extra per micrometer.

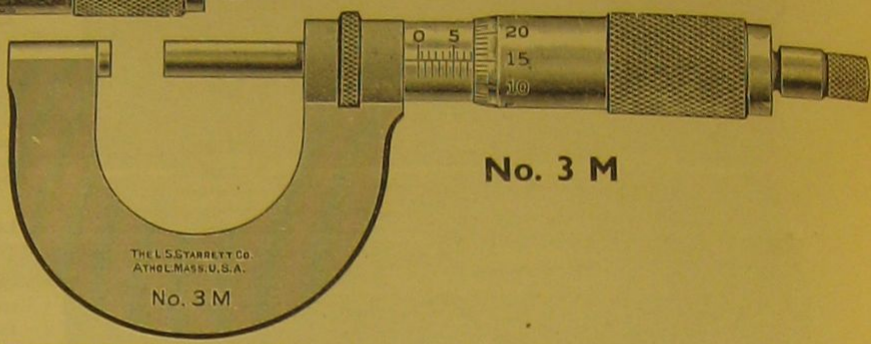
Metric sizes supplied at same prices as English equivalents.

MICROMETER CALIPERS

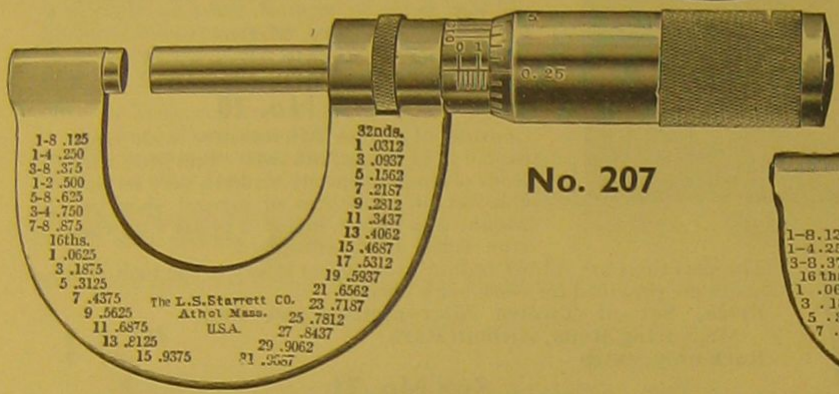
Starrett Micrometers (Made in U.S.A.)



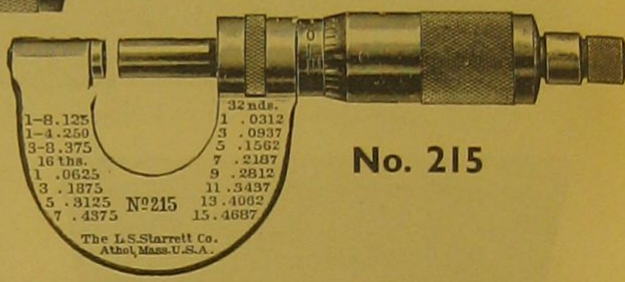
No. 2



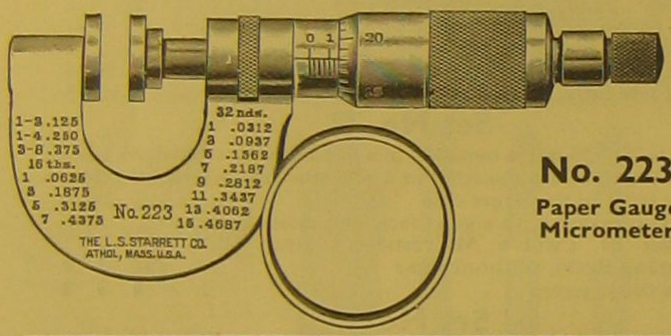
No. 3 M



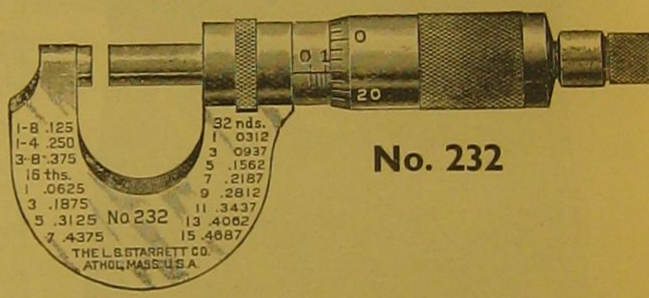
No. 207



No. 215



No. 223
Paper Gauge Micrometer



No. 232

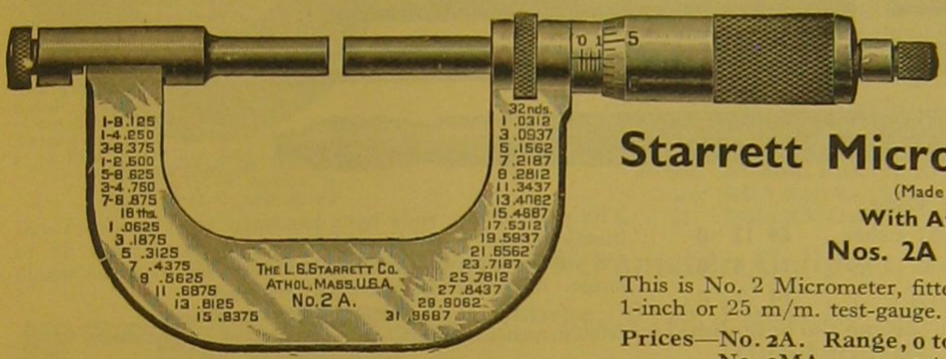
No.	Capacity.	Reading.	Description.	Price	Cases, each.
2	1 to 2 ins. or 25 to 50 m/m.	$\frac{1}{1000}$ in. or $\frac{1}{100}$ m/m.	Lock Nut, Ratchet Stop, and Test Gauge	£2 9 0	5 0
3	1 in. or 25 m/m.	$\frac{1}{1000}$ in. or $\frac{1}{100}$ m/m.	As shown, with Lock Nut and Ratchet Stop, No. 3 has decimal equivalents stamped on frame, No. 3M is plain	2 4 6	3 6
113	1 in.	$\frac{1}{10000}$ in.	As No. 3, with Lock Nut and Ratchet Stop	2 12 0	3 6
201	1 in. or 25 m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	Lock Nut, but no Ratchet Stop	2 2 3	3 6
202	1 in. or 25 m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	Ratchet Stop, but no Lock Nut	2 0 0	3 6
203	1 in. or 25 m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	No Lock Nut, no Ratchet Stop	1 17 9	3 6
207	1 in.	$\frac{1}{10000}$ in.	Lock Nut, but no Ratchet Stop	2 9 9	3 6
208	1 in.	$\frac{1}{10000}$ in.	Ratchet Stop, but no Lock Nut	2 7 6	3 6
209	1 in.	$\frac{1}{10000}$ in.	As No. 203, but reading to $\frac{1}{10000}$ in.	2 5 3	3 6
213	1 to 2 ins.	$\frac{1}{10000}$ in.	Lock Nut, Ratchet Stop, and Test Gauge	2 16 6	5 0
214	1 to 2 ins.	$\frac{1}{10000}$ in.	With Lock Nut and Test Gauge, no Ratchet Stop	2 14 3	5 0
215	$\frac{1}{2}$ in. or 13 m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	As shown, with Lock Nut and Ratchet Stop	1 17 9	3 6
216	$\frac{1}{2}$ in. or 13 m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	As No. 215, but no Lock Nut	1 13 3	3 6
217	1 to 2 ins. or 25 to 50 m/m.	$\frac{1}{1000}$ in. or $\frac{1}{100}$ m/m.	With Lock Nut and Test Gauge, no Ratchet Stop	2 6 9	5 0
218	$\frac{1}{2}$ in.	$\frac{1}{10000}$ in.	As No. 215, but no Lock Nut	2 0 9	3 6
219	$\frac{1}{2}$ in.	$\frac{1}{10000}$ in.	As No. 215, with Lock Nut and Ratchet Stop	2 5 3	3 6
223	$\frac{11}{32}$ in. or 8$\frac{1}{2}$ m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	,, shown, ,, ,, ,, ,, ...	2 9 3	4 6
223	$\frac{11}{32}$ in. or 8$\frac{1}{2}$ m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	,, ,, without Ratchet Stop	2 6 9	4 6
225	$\frac{11}{32}$ in. or 8$\frac{1}{2}$ m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	,, No223, but without Ring Att. and without Ratchet Stop	2 2 3	4 0
225	$\frac{11}{32}$ in. or 8$\frac{1}{2}$ m/m.	$\frac{1}{10000}$ in. or $\frac{1}{100}$ m/m.	,, ,, ,, ,, ,, with Ratchet Stop	2 4 3	4 0
230	1 in.	$\frac{1}{10000}$ in.	Similar to No. 232, with Lock Nut and Ratchet Stop ...	2 4 6	3 6
231	1 in.	$\frac{1}{10000}$ in.	,, ,, ,, ,, ...	2 12 0	3 6
232	$\frac{1}{2}$ in.	$\frac{1}{10000}$ in.	,, illustrated, with Shortened Anvil	1 17 9	3 6
233	$\frac{1}{2}$ in.	$\frac{1}{10000}$ in.	,, ,, ,, ...	2 5 3	3 6

Starrett Attachment No. 212 for Two-inch Micrometers

(Made in U.S.A.)

This Attachment, by means of which a 2-inch micrometer may be instantly converted into a 1-inch tool, will be furnished, when ordered, with any of the 2-inch or 50-millimetre micrometers. It will not fit No. 226 Micrometer.

Price **13/6**



Starrett Micrometer Calipers

(Made in U.S.A.)

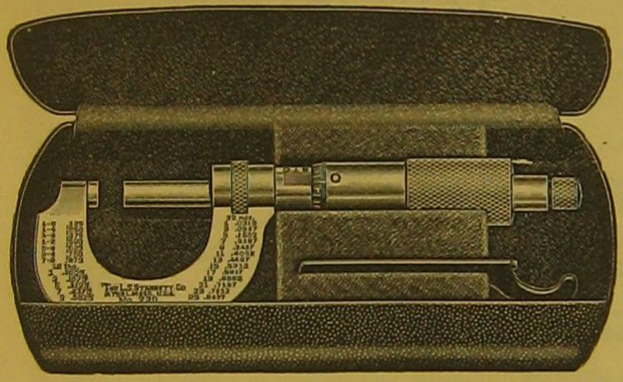
With Attachment

Nos. 2A AND 2MA

This is No. 2 Micrometer, fitted with No. 212 Attachment and 1-inch or 25 m/m. test-gauge.

Prices—**No. 2A. Range, 0 to 2 ins.** **£3 2 3**
No. 2MA. ,, 0 to 50 m/m. ... **3 2 3**

Leather Case only ... **5/-**



Starrett Pocket Micrometer Case, No. 911 (Made in U.S.A.)

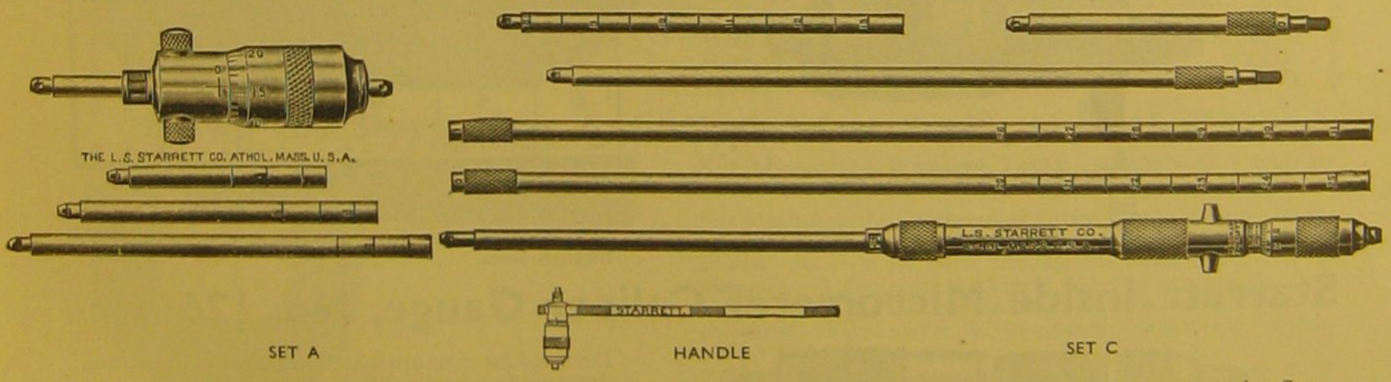
This Case is much like the ordinary spectacle case, made of steel with snappy spring cover. It is plush lined and covered with imitation leather.

It is light in weight, compact in size, and, aside from protection of the micrometer against dirt and grit when carried in the pocket, it is less cumbersome than other types.

For 1-inch micrometers only.

Price **4/-**

Starrett Inside Micrometers, No. 120 (Made in U.S.A.)



SET A HANDLE SET C

Set A has screw and nut as with an outside Micrometer Caliper, and reads in thousandths. It measures from 2 to 8 inches, has ½-inch movement of screw, and requires four extension rods. The rods are provided with a hardened steel adjustable anvil in ends, which permits adjusting for wear. A small binding screw locks rods when set. Rods are marked in ½-inch divisions and set to a similar line on a projection of the barrel.

Set C is similar in all respects to Set A, with the exception that it measures from 8 to 32 inches, with four extension rods, and has a lock for the rods; and has 1 inch movement of the screw.

This is a very strong and serviceable tool as well as an accurate one. We can furnish rods of extra lengths for these tools when desired.

When so ordered, an auxiliary handle accompanies Sets A, B, and D, which is used by removing the nut opposite the lock nut and screwing the handle in place of same, thereby enabling one to take measurements in holes and other places where the micrometer could not otherwise be used.

Prices, including Case.

Set A.	With 4 rods, to measure from 2 to 8 inches	**£2 1 0**
,, **B.**	With 7 rods, to measure from 2 to 12 inches	**2 9 3**
,, **C.**	With 4 rods, to measure from 8 to 32 inches	**3 1 0**
,, **D.**	Comprising Sets A and C	**4 18 3**
	Handle, extra	**3 9**

Starrett Inside Micrometers, No. 121 (Made in U.S.A.)

When linear measurements are beyond the capacity of the ordinary micrometer it is frequently necessary to have a more accurate instrument than the rule or steel tape. The inside micrometers shown here consist of steel tubes with telescoping extensions combined with a 1-inch screw micrometer movement. The tubes are accurately graduated and figured in inches and set to the inch marks showing the length wanted, and are firmly held by a knurled locking nut.

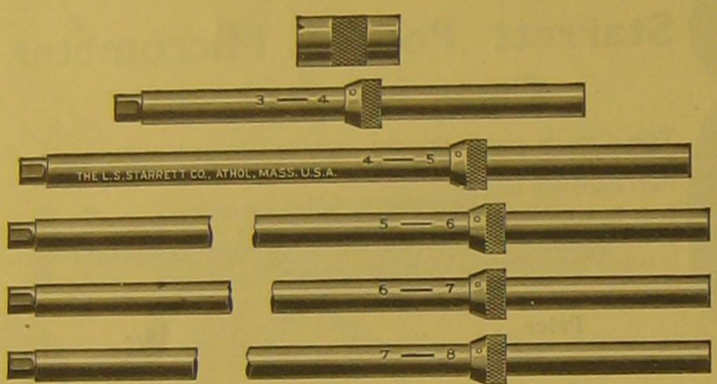
Prices, including Case.

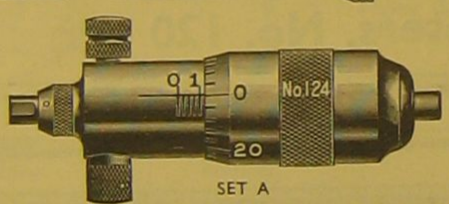
Set A.	Stock with	one rod, 32 to 57 inches	£9 12	0
,, B.	,,	,, two rods, 32 to 82 ,,	11 8	0
,, C.	,,	,, three rods, 32 to 107 ,,	14 2	0

The ends of the rods have hardened steel anvils. Combinations are possible which give a range from 32 to 107 inches and with micrometer accuracy over the whole range. A case is furnished with each set.

The above Sets can also be furnished for Metric measurements, if desired.

Starrett Inside Micrometers, No. 124 (Made in U.S.A.)





SET A

HANDLE

The Micrometer Screw in the head has ½ inch movement in sets A and B, 1 inch in set C, and, by means of the extension rods furnished, the sizes as given below for each set can be obtained. In setting the rods, see that the zero mark on the collar coincides with the zero mark on the micrometer head. With the rods are sent standard gauges or rings to slip on the rods, under the collars, to further extend the rod. The contact surfaces are all hardened, and provision is made for adjustment, to compensate for wear of the screw and contact surfaces.

The auxiliary handle shown can be used with sets A, B, and D.

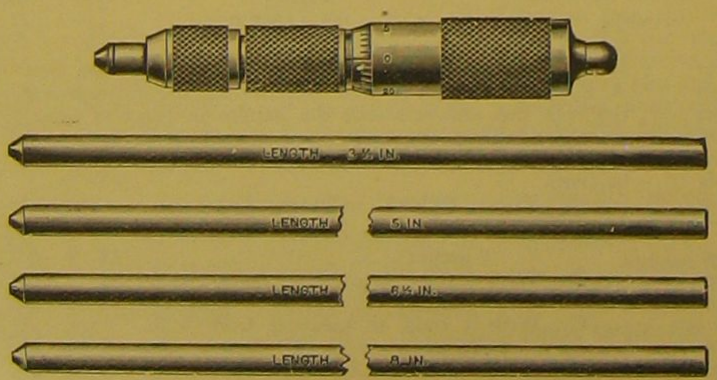
The handle is used by removing the nut opposite the lock nut and screwing the handle in place of same, thus fitting the tool for use in places too small for the hand.

Set	Rods included	Gauge included	Capacity	Price with Case
A	6	One ½ in.	2 to 8 ins.	£2 3 3
B	10	,, ½ ,,	2 ,, 12 ,,	2 13 6
C	4	One 1 in. and two 2 in.	8 ,, 32 ,,	3 3 6
D comprises Sets A and C			2 ,, 32 ,,	5 4 6

Handles, **3/9** each extra.

Any of the above Sets can be furnished graduated in millimetres, if so desired. Prices as for equivalent English sizes.

Starrett Inside Micrometer Caliper Gauge, No. 126 (Made in U.S.A.)



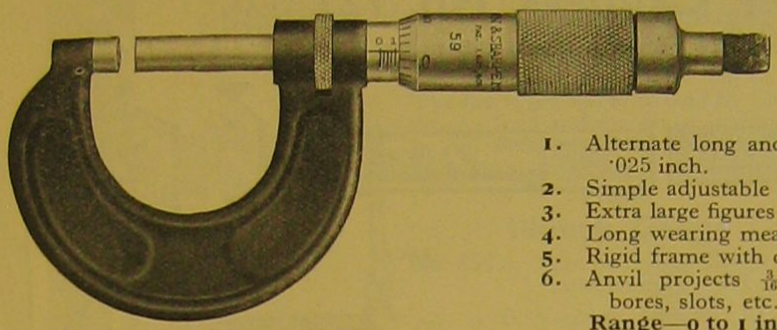
Designed for close internal measurements. indicating thousandths where a definite distance in inches is not essential. The body of the tool is a steel tube, provided at one end with a binding chuck in which are fastened the plain rods, and it can quickly be adjusted to any approximate size. The other end has sleeve and body of barrel marked and graduated same as the No. 3 Micrometer Caliper, giving a reading in $\frac{1}{1000}$ths, and has ¼-inch movement of screw. Anvil in end of sleeve is hardened, as are the ends of the rods.

Prices

Capacity, 2½ to 10 inches (with five Rods) ...	15/-
In Leather Case	21/-

MICROMETERS

Brown and Sharpe Micrometer Calipers (Made in U.S.A.)



SHOWING STYLE OF **No. 11A R.S.** MICROMETER WHICH IS WITHOUT CLAMP RING

No. 11A

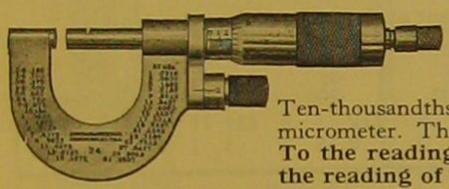
The following special features enter into the new design of this micrometer.

1. Alternate long and short graduations on barrel plainly show each ·025 inch.
2. Simple adjustable thimble.
3. Extra large figures on the thimble. They are readable at a glance.
4. Long wearing measuring points of high carbon, chromium steel.
5. Rigid frame with deep opening.
6. Anvil projects $\frac{3}{16}$" in opening. This is convenient for counterbores, slots, etc.

Range—0 to 1 inch by ·001 inch or 0 to 25 m/m. by ·01 m/m.

Price, without Ratchet Stop **£1 15 6**
,, with Ratchet Stop **£1 17 6**
,, Bakelite Case ... ... **3 6 extra**

Brown and Sharpe Micrometer Calipers, No. 24 (Made in U.S.A.)



Range, 0 to 1 inch by ten-thousandths as well as thousandths of an inch

Ten-thousandths on this tool can be read as easily and positively as thousandths on an ordinary micrometer. There are no gears or intricate mechanisms to get out of order.

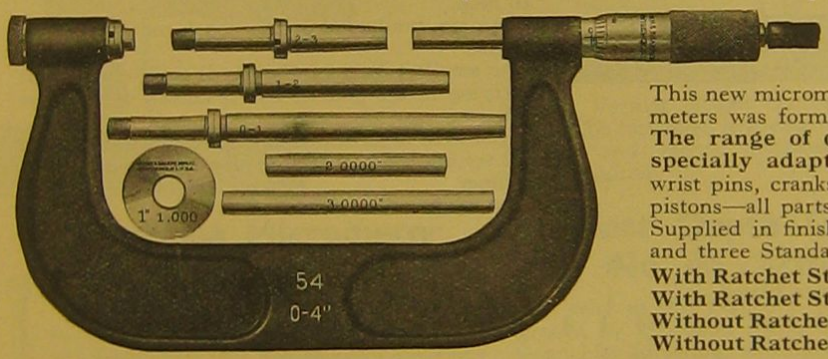
To the reading of the main barrel and thimble in thousandths of an inch, simply add the reading of the small auxiliary thimble which turns to indicate the ten-thousandths.

The small thimble turns independently of the main thimble and does not affect the spindle movement.

This micrometer has a solid anvil. The adjustment to compensate for wear on the measuring surfaces is the simplest yet devised and, when made, can be securely locked.

No. 24, as shown, £3 17 9; with Ratchet Stop, £3 19 9; Leather Case, 6/3 extra.

Brown and Sharpe Micrometer Calipers, No. 54 (Made in U.S.A.)



Range 0 to 4 ins. by thousandths of an inch.

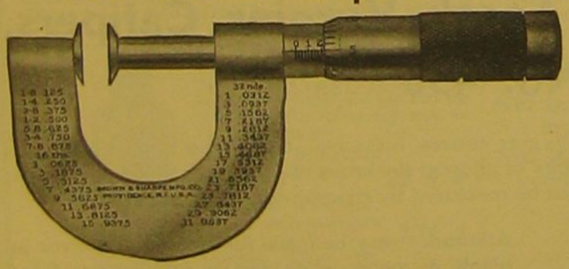
This new micrometer does work for which a set of four micrometers was formerly required.

The range of 0 to 4 ins. by thousandths of an inch, specially adapts it to measuring camshaft bearings, wrist pins, crankshaft bearings and pins, as well as nearly all pistons—all parts that require close measurement.

Supplied in finished wooden case and set with Ratchet Stop and three Standards, unless otherwise ordered.

With Ratchet Stop, with Standards Prices ... **£4 18 9**
With Ratchet Stop, without Standards ... **£4 2 0**
Without Ratchet Stop, with Standards ... **£4 16 9**
Without Ratchet Stop, without Standards ... **£4 0 0**

Brown and Sharpe Disc Anvil Type Micrometers, No. 215 (Made in U.S.A.)

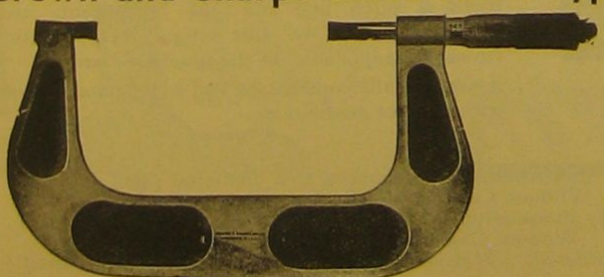


For Measuring Forming Tools. Range 0 to 1 inch by thousandths of an inch.

For Measuring the Thickness of Forms, and in other places inaccessible to regular micrometers, this Micrometer Caliper has special discs on its anvil and spindle. Discs are $\frac{1}{2}$ in. in diameter, $\frac{1}{16}$ in. thick in centre and ·020 in. thick at edge. Forms up to $\frac{1}{8}$ in. deep and over ·020 in. in width can be measured. Very useful for producing complicated forming tools.

Price, No. 215, as illustrated, ... **£4 1 0**
With Ratchet Stop **£4 3 0**

Brown and Sharpe Blade Anvil Type Micrometers, Nos. 216 to 219 (Made in U.S.A.)



For Measuring Forming Tools. Range 1 to 4½ ins. by thousandths of an inch.

These Micrometer Calipers have thin blade ends on Anvil and Spindle for measuring depths of narrow grooves and diameters of forming tools. The blade on spindle end does not rotate. Blades are ·030 in. thick and permit measurements in slots having a depth up to $\frac{7}{32}$ in.

No.	**216**	**217**	**218**	**219**
Range, ins., by ·001"	1 to 2	1½ to 2½	2½ to 3½	3½ to 4½
Price, each ...	**£9 19 9**	**£9 19 9**	**£9 19 9**	**£9 19 9**

VERNIER CALIPERS

Starrett Vernier Calipers, No. 122 (Made in U.S.A.)

Graduated to read by means of the Vernier in 1000ths of an inch.

These Calipers are graduated in either or both English and Metric divisions for outside and inside measure, and are warranted accurate. Points are placed on the beams and slides for setting dividers to transfer distances. Full directions for using the Vernier are sent with each caliper.

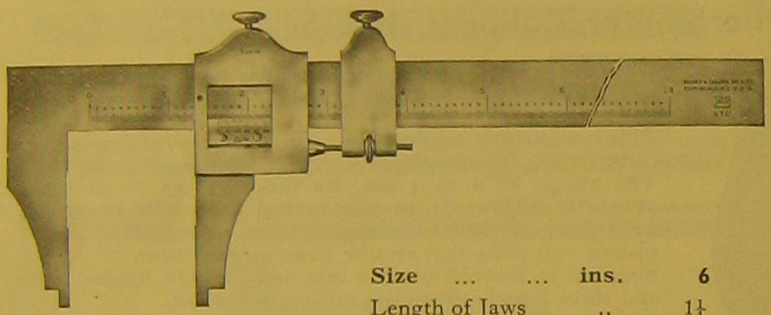
The jaws are hardened, ground, and lapped, parallel to each other, assuring accurate measurements at any contact points of the jaws.

A quarter-inch cylindrical plug standard can be furnished for testing the adjustment of the caliper when desired.

Size	**ins.**	4	6	9	12	24	36	48
Depth of Jaws	,,	1 $\frac{9}{16}$	1 $\frac{9}{16}$	2$\frac{3}{8}$	2$\frac{3}{8}$	2$\frac{3}{8}$	3	3
Width of Nibs when Closed...	,,	·250	·250	·300	·300	·300	·500	·500
Price	**each**	£3 10 6	£5 15 0	£6 12 6	£7 3 9	£10 1 6	£21 11 6	£39 10 6
Case Extra	,,	0 4 3	0 6 0	0 8 3	0 10 0	0 15 6	3 2 6	5 4 3

Sent with Case unless otherwise ordered.

Brown & Sharpe Vernier Calipers, No. 570 (Made in U.S.A.)



These Vernier Calipers are graduated on the front to read, by means of a vernier, to thousandths of an inch.

They are graduated on the back to 64ths of an inch.

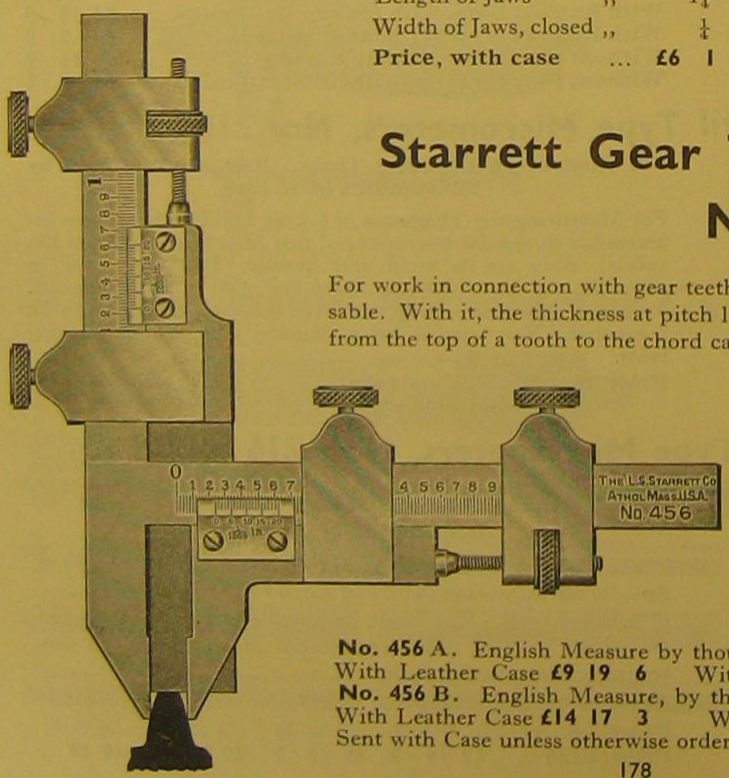
The smallest Vernier Caliper is well adapted for carrying in the pocket, and is known as a pocket vernier.

A standard is furnished at extra cost when desired for testing the accuracy of the adjustment of the Caliper.

Also made to metric sizes.

Size	**ins.**	6	12	24
Length of Jaws	,,	1$\frac{1}{4}$	2$\frac{1}{4}$	2$\frac{1}{4}$
Width of Jaws, closed	,,	$\frac{1}{4}$	$\frac{3}{10}$	$\frac{3}{10}$
Price, with case ...		£6 1 0	£7 13 9	£11 10 9

Starrett Gear Tooth Vernier Calipers, No. 456 (Made in U.S.A.)



For work in connection with gear teeth, gear cutters, hobs, etc., this tool is almost indispensable. With it, the thickness at pitch line or chordal thickness of gear teeth and the distance from the top of a tooth to the chord can be measured by thousandths of an inch.

Allowance may be made for variation or error in blank diameter when setting for distance from top to pitch line of tooth. The thickness of a tooth at pitch line and the addendum are measured by a jaw and tongue respectively, which are adjustable on the graduated arms.

A substantially constructed and well balanced tool with distinct graduations.

Prices

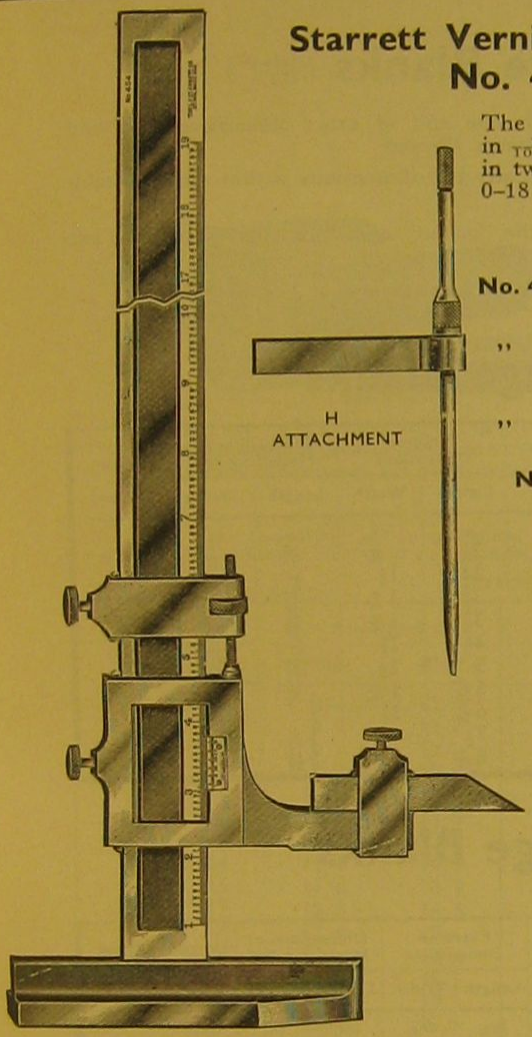
No. 456 A. English Measure by thousandths. 20 diametral to 2 diametral pitch.
With Leather Case **£9 19 6** Without Case **£9 15 0**

No. 456 B. English Measure, by thousandths. 10 diametral to 1 diametral pitch.
With Leather Case **£14 17 3** Without Case **£14 10 0**

Sent with Case unless otherwise ordered. Metric Sizes can also be supplied when desired.

HEIGHT AND DEPTH GAUGES

Starrett Vernier Height Gauges No. 454 (Made in U.S.A.)



The bar is graduated to read by vernier in $\frac{1}{1000}$ inch and the gauge is supplied in two sizes measuring 0–10 inch and 0–18 inch inside jaws.

Prices

10-inch Gauge

No. 454 A Vernier Height Gauge with attachment C **£11 18 6**

,, ,, **B** Vernier Height Gauge without attachment C **£10 18 0**

,, ,, **C** Attachment only **1 0 6**

Plush-lined case **8 0**

No. 454 A with case sent unless otherwise ordered.

18-inch Gauge

No. 454 F Vernier Height Gauge with attachment H **£26 3 0**

,, ,, **G** Vernier Height Gauge without attachment H **£24 10 6**

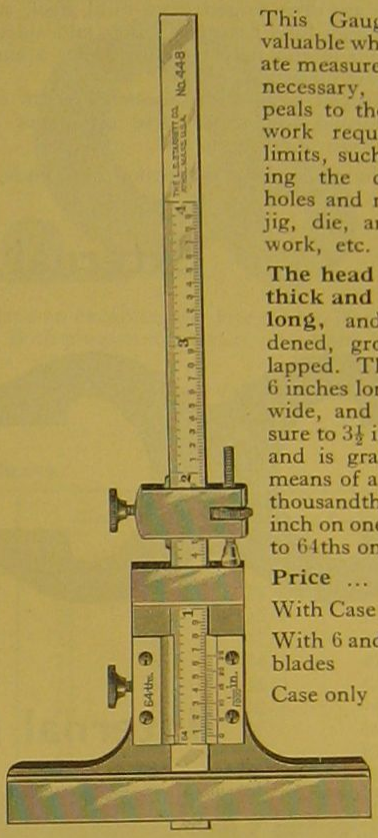
,, ,, **H** Attachment only ... **1 12 9**

Wood case, extra ... **1 19 3**

No. 454 F with case sent unless otherwise ordered.

Starrett Vernier Height Gauges can also be furnished in metric or English and metric measure, when required.

Starrett Vernier Depth Gauge, No. 448 (Made in U.S.A.)



This Gauge is invaluable where accurate measurements are necessary, and appeals to those whose work requires close limits, such as gauging the depths of holes and recesses in jig, die, and fixture work, etc.

The head is ¼ inch thick and 2¾ inches long, and is hardened, ground, and lapped. The blade is 6 inches long, ⅜ inch wide, and will measure to 3½ inch depth, and is graduated by means of a vernier to thousandths of an inch on one edge, and to 64ths on the other.

Price ... **£4 0 0**

With Case **4 5 6**

With 6 and 12 inch blades **£6 1 6**

Case only **9 3**

Starrett Micrometer Depth Gauge, No. 440

(Made in U.S.A.)

Have 1-in. movement of screw, and are provided with 3 measuring rods with hardened and lapped ends.

Range of measurement 0 to 3 inches by thousandths of an inch.

The rods are inserted through a hole in the screw and brought to a positive seat by a small knurled nut. The base is hardened, ground, and lapped.

Note—The end of the rod is very slightly convex, but can be furnished flat, if so ordered, at the same price.

No. 440A. With 2½in. base, without ratchet stop **£2 9 0**

No. 440A. With 2½in. base, with ratchet stop **2 11 9**

Leather Case for above **6 9**

No. 440B. With 4in. base, without ratchet stop **3 2 9**

No. 440B. With 4in. base, with ratchet stop **3 5 6**

Leather Case for above **9 0**

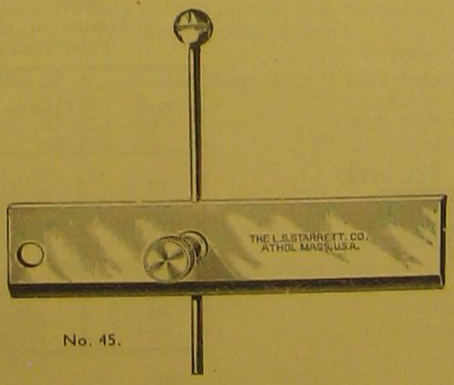
Starrett Depth Gauge. No. 45 (Made in U.S.A.)

The wire in this Gauge is held to a groove by a friction spring inside the nut while adjusting, and may be used close to the end, as well as in the middle of the straight edge. By loosening the nut, the Gauge may be neatly folded.

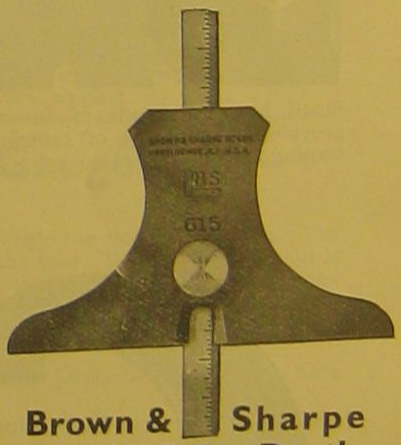
No. 45 A, with 3½-inch Stock, and 3½-inch Wire **5/–**

No. 45 B, with 6-inch Stock and 6-inch Wire **8/–**

No. 45 C, with 10-inch Stock and 6-inch Wire **9/3**



No. 45.



Brown & Sharpe 6-inch Rule Depth Gauge, No. 615 (Made in U.S.A.)

The head of this tool is of hardened steel 2½ inches wide and ⅛ inch thick, and is designed for convenient measuring.

The blade is a 4-inch or 6-inch narrow tempered steel rule graduated in 32nds and 64ths (or 64ths and 100ths of an inch for the 6-inch rule).

When desired, the blade can be furnished in metric sizes graduated in m/m. and half m/m.

Price, with 6-in. rule ... **7/6 each**

,, with 4-in. rule ... **6/9** ,,

Williams' Drop-Forged Gauge Blanks (Made in U.S.A.)

These are drop-forged from mild steel, suitable for case-hardening. The lettering panels and sides of jaws are on same plane and may be finished by a single grinding or polishing operation.
The special size of the measuring jaw or pad provides for unusual advantages; five classes of gauges may be made from one forging:—

1. Plain gauge; same dimension both ends.
2. Gauge with one end of exact dimension, other end for two limits allowed.
3. Gauge with any two dimensions within range of table limits.
4. Gauge of the "go on" and "not go on" variety; two combinations.
5. Plain gauge; four dimensions.

External Double-End Gauge Blanks

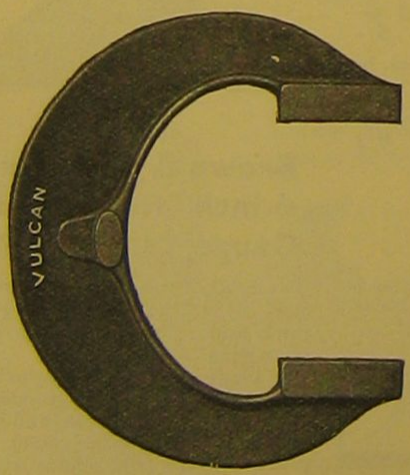
No.	Capacity	Extreme Dimensions		Dimensions of Measuring Pad		Price Un-finished
		Length	Width	Length	Width	
	Ins.	Ins.	Ins.	Ins.	In.	
2	$\frac{1}{4}$ to $\frac{3}{8}$	$2\frac{1}{8}$	$\frac{19}{16}$	$\frac{15}{32}$	$\frac{3}{16}$	0/10
4	$\frac{3}{8}$,, $\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{3}{16}$	0/11
6	$\frac{1}{2}$,, $\frac{3}{4}$	$3\frac{1}{8}$	$1\frac{9}{16}$	$\frac{19}{32}$	$\frac{1}{4}$	1/1
8	$\frac{3}{4}$,, 1	$3\frac{3}{8}$	$1\frac{19}{16}$	$\frac{21}{32}$	$\frac{1}{32}$	1/3
10	1 ,, $1\frac{1}{4}$	$4\frac{3}{8}$	$2\frac{3}{8}$	$\frac{3}{4}$	$\frac{9}{32}$	1/8
12	$1\frac{1}{4}$,, $1\frac{1}{2}$	5	$2\frac{3}{4}$	$\frac{27}{32}$	$\frac{15}{16}$	2/3
14	$1\frac{1}{2}$,, $1\frac{3}{4}$	$5\frac{9}{16}$	$3\frac{1}{16}$	$\frac{15}{16}$	$\frac{15}{16}$	3/-
16	$1\frac{3}{4}$,, 2	$6\frac{5}{16}$	$3\frac{1}{2}$	1	$\frac{15}{16}$	4/-
18	2 ,, $2\frac{1}{2}$	$7\frac{1}{4}$	$4\frac{5}{16}$	$1\frac{5}{32}$	$\frac{15}{32}$	5/3
20	$2\frac{1}{2}$,, 3	$8\frac{9}{16}$	$5\frac{1}{8}$	$1\frac{11}{32}$	$\frac{1}{2}$	6/8

Internal Double-End Gauge Blanks

Small bosses at ends of Internal Gauges provide ready means of centring for lathe turning.

No.	Capacity	Extreme Dimensions		Dimensions of Measuring Pad		Length Centre Pad	Price Un-finished
		Length	Width	Length	Width		
	Ins.	Ins.	Ins.	Ins.	In.	Ins.	
110	1 to $1\frac{1}{4}$	3	$1\frac{3}{8}$	1	$\frac{9}{32}$	$\frac{5}{8}$	1/3
112	$1\frac{1}{4}$,, $1\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{8}$	1/8
114	$1\frac{1}{2}$,, $1\frac{3}{4}$	$4\frac{1}{4}$	$1\frac{7}{8}$	$1\frac{1}{2}$	$\frac{5}{16}$	$\frac{3}{4}$	2/4
116	$1\frac{3}{4}$,, 2	$4\frac{7}{8}$	$2\frac{1}{8}$	$1\frac{3}{4}$	$\frac{5}{16}$	$\frac{13}{16}$	2/11
118	2 ,, $2\frac{1}{2}$	$5\frac{3}{8}$	$2\frac{5}{8}$	$1\frac{15}{16}$	$\frac{15}{32}$	$\frac{7}{8}$	3/9
120	$2\frac{1}{2}$,, 3	$6\frac{3}{8}$	$3\frac{1}{8}$	$2\frac{5}{16}$	$\frac{1}{2}$	1	5/-

Single-End Snap Gauge Blanks



Three classes of Gauges may be made from one forging:—

1. Plain gauge; single dimension.
2. Gauge with any two dimensions within range of table limits.
3. Gauge of the "go on" and "not go on" variety; one combination.

No.	Capacity	Extreme Dimensions		Dimensions of Measuring Pad		Price Un-finished
		Length	Width	Length	Width	
	Ins.	Ins.	Ins.	Ins.	In.	
22	3 to $3\frac{1}{2}$	$5\frac{1}{8}$	$5\frac{3}{4}$	$1\frac{1}{8}$	$\frac{1}{2}$	4/2
24	$3\frac{1}{2}$,, 4	$5\frac{11}{16}$	$6\frac{1}{2}$	$1\frac{11}{16}$	$\frac{17}{32}$	5/-
26	4 ,, $4\frac{1}{2}$	$6\frac{1}{4}$	$7\frac{3}{16}$	$1\frac{13}{16}$	$\frac{17}{32}$	6/1
28	$4\frac{1}{2}$,, 5	$6\frac{13}{16}$	$7\frac{13}{16}$	2	$\frac{9}{16}$	7/4
30	5 ,, $5\frac{1}{2}$	$7\frac{7}{16}$	$8\frac{5}{8}$	$2\frac{1}{8}$	$\frac{9}{16}$	8/9
32	$5\frac{1}{2}$,, 6	$7\frac{15}{16}$	$9\frac{3}{16}$	$2\frac{9}{32}$	$\frac{9}{16}$	10/5
34	6 ,, $6\frac{3}{4}$	$8\frac{13}{16}$	10	$2\frac{1}{2}$	$\frac{23}{32}$	13/7
36	$6\frac{3}{4}$,, $7\frac{1}{2}$	$9\frac{11}{16}$	11	$2\frac{3}{4}$	$\frac{3}{4}$	16/8

PLUG, RING AND SURFACE GAUGES

Horstmann Standard Plug and Ring Gauges

(British Made)

These Gauges are highly accurate, being ground and afterwards lapped so as to give an exceptionally fine mirror-like surface which possesses a much greater resistance to wear than an ordinary ground finish. Both plugs and rings are glass hard, and the guaranteed limits of accuracy are given below.

Limits of Accuracy

	Plugs and Rings.
Up to 1 inch diameter ... ... plus or minus	·00005 inch
Over 1 inch and up to 3 inches ... ... ,, ,, ...	·0001 ,,
Over 3 inches and up to 4 inches ... ... ,, ,, ...	·00015 ,,

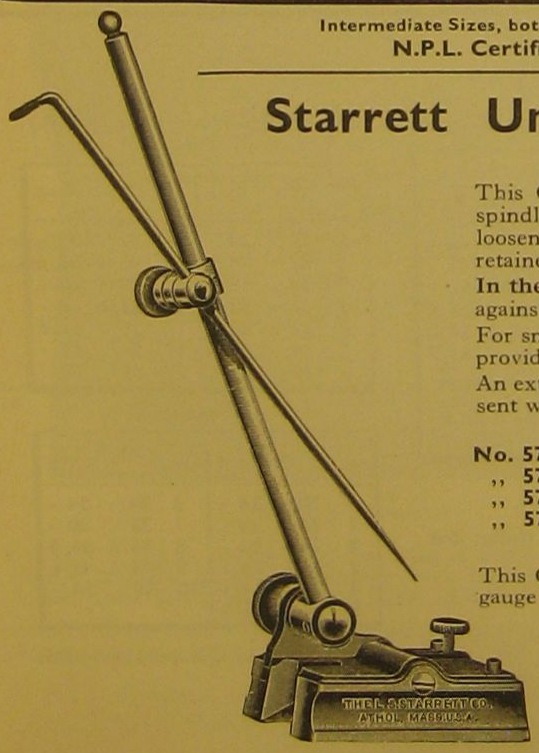
Prices of Gauges, without N.P.L. Certificate

Diameter		Price Each		Diameter		Price Each		Diameter		Price Each	
Ins.	m/m.	Plug	Ring	Ins.	m/m.	Plug	Ring	Ins.	m/m.	Plug	Ring
1/8	3	9/-	12/-	1 1/8	28	16/-	21/-	2 1/4	56	29/-	35/-
3/16	4	9/-	12/-	1 3/16	30	17/-	22/-	2 3/8	59	30/6	36/6
1/4	6	9/-	12/-	1 1/4	31	18/-	23/-	2 1/2	63	32/6	38/6
5/16	7	9/-	12/-	1 5/16	33	19/-	24/-	2 5/8	65	34/6	40/6
3/8	9	10/-	12/9	1 3/8	34	19/-	24/-	2 3/4	69	36/6	42/6
7/16	11	10/6	13/9	1 7/16	36	20/-	25/-	2 7/8	72	38/6	44/6
1/2	12	10/6	13/9	1 1/2	38	20/6	26/-	3	75	41/-	46/-
9/16	14	11/6	14/9	1 9/16	39	21/-	27/-	3 1/8	78	43/-	48/-
5/8	15	11/6	14/9	1 5/8	41	22/–	28/-	3 1/4	81	45/-	50/-
11/16	17	12/6	16/6	1 11/16	42	22/6	29/-	3 3/8	84	47/6	52/6
3/4	19	12/6	17/-	1 3/4	44	23/-	29/-	3 1/2	89	50/-	55/-
13/16	20	13/-	17/6	1 13/16	46	23/6	30/-	3 5/8	92	52/-	57/-
7/8	22	14/-	18/-	1 7/8	47	24/6	31/6	3 3/4	96	54/-	59/-
15/16	23	14/-	18/-	1 15/16	49	26/-	32/6	3 7/8	98	56/6	61/6
1	25	15/-	19/-	2	50	26/-	32/6	4	102	58/6	63/-
1 1/16	26	15/-	20/6	2 1/8	53	27/6	33/6				

Intermediate Sizes, both fractional and millimetre, take price of next larger size specified.

N.P.L. Certificates when required are charged extra, at cost

Starrett Universal Surface Gauges (Made in U.S.A.)



No. 57.

This Gauge has a heavy base, grooved through the bottom and end. The spindle may be turned so as to work under the base. When the clamp nut is loosened all may be freely moved to any position, and by friction springs retained in place until a slight turn of the clamp nut holds them firmly.

In the base are gauge pins, frictionally held, which may be pushed to bear against the edge of a surface plate, etc.

For small work the spindle may be removed and the scriber inserted in a hole provided for it.

An extra long spindle, which may be quickly substituted for the regular, will be sent with the Gauge when ordered.

Prices

No. 57 A,	3-inch Base, with 9-inch Spindle		20/6
,, **57 B,**	3 ,, ,, 9 and 12-inch Spindles		23/6
,, **57 C,**	3¾ ,, ,, 12-inch Spindle		28/3
,, **57 D,**	3¾ ,, ,, 12 and 18-inch Spindles		32/3

No. 257.

This Gauge is substantially the same as No. 57, described above, but has four gauge pins in base.

Prices

No. 257 A,	3-inch Base, with 9-inch Spindle		27/9
,, **257 B,**	3 ,, ,, 9 and 12-inch Spindles ...		30/9
,, **257 C,**	3½ ,, ,, 12-inch Spindle		34/3
,, **257 D,**	3½ ,, ,, 12 and 18-inch Spindles ...		38/–

SCREW GAUGES

Horstmann Hardened Screw Gauges

(British Made)

Suitable for Reference, Inspection, and Workshop Use

These high quality Gauges are produced from best quality steel and are British throughout. The most modern methods of manufacture are employed in their production, and particular note should be made of the fact that **they are glass hard and lapped by a special method** ensuring long life owing to the elimination of all surface irregularities.

They are carefully stabilised before the final lapping process to ensure freedom from distortion.

Horstmann Gauges are guaranteed to conform to the specification laid down by the National Physical Laboratory and are supplied in three classes of limits—Reference, Inspection, and Workshop.

Limits of Accuracy

Limits for Plug Screw Gauges other than B.A.			B.A. Limits		Limits for Ring Screw Gauges other than B.A.			B.A. Limits	
Size of Screw	Up to and including 1·5 ins.	Above 1·5 and up to 3 ins.	0–7	8–10	Size of Screw	Up to and including 1·5 ins.	Above 1·5 and up to 3 ins.	0–7	8–10
Reference					**Reference**				
Full Diam., ins.	+0·0000 −0·0003	+0·0000 −0·0005	+0·0000 −0·0003	+0·0000 −0·0002	Full Diam., ins.	+0·0005 −0·0000	+0·0007 −0·0000	+0·0005 −0·0000	+0·0003 −0·0000
Effective Diam., ins.	+0·0000 −0·0003	+0·0000 −0·0005	+0·0000 −0·0003	+0·0000 −0·0002	Effective Diam., ins.	+0·0003 −0·0000	+0·0005 −0·0000	+0·0003 −0·0000	+0·0002 −0·0000
Core Diam., ins.	+0·0000 −0·0005	+0·0000 −0·0007	+0·0000 −0·0005	+0·0000 −0·0003	Core Diam., ins.	+0·0003 −0·0000	+0·0005 −0·0000	+0·0003 −0·0000	+0·0002 −0·0000
Inspection					**Inspection**				
Full Diam., ins.	+0·0000 −0·0006	+0·0000 −0·0009	+0·0000 −0·0006	+0·0000 −0·0004	Full Diam., ins.	+0·0009 −0·0000	+0·0014 −0·0000	+0·0009 −0·0000	+0·0006 −0·0000
Effective Diam., ins.	+0·0000 −0·0006	+0·0000 −0·0009	+0·0000 −0·0006	+0·0000 −0·0004	Effective Diam., ins.	+0·0006 −0·0000	+0·0009 −0·0000	+0·0006 −0·0000	+0·0004 −0·0000
Core Diam., ins.	+0·0000 −0·0009	+0·0000 −0·0014	+0·0000 −0·0009	+0·0000 −0·0006	Core Diam., ins.	+0·0006 −0·0000	+0·0009 −0·0000	+0·0006 −0·0000	+0·0004 −0·0000
Workshop					**Workshop**				
Full Diam., ins.	+0·0006 −0·0000	+0·0009 −0·0000	+0·0006 −0·0000	+0·0004 −0·0000	Full Diam., ins.	+0·0003 −0·0006	+0·0005 −0·0009	+0·0003 −0·0006	+0·0002 −0·0004
Effective Diam., ins.	+0·0006 −0·0000	+0·0009 −0·0000	+0·0006 −0·0000	+0·0004 −0·0000	Effective Diam., ins.	+0·0000 −0·0006	+0·0000 −0·0009	+0·0000 −0·0006	+0·0000 −0·0004
Core Diam., ins.	+0·0006 −0·0003	+0·0009 −0·0005	+0·0006 −0·0003	+0·0004 −0·0002	Core Diam., ins.	+0·0000 −0·0006	+0·0000 −0·0009	+0·0000 −0·0006	+0·0000 −0·0004

Errors in the pitch and/or angle of a gauge virtually increase or decrease the effective diameter, according to whether the gauge is a plug or ring. In Horstmann Gauges the pitch and angle errors are taken into consideration collaterally with the effective diameter. The formula for angle tolerance on Whitworth form Screw Gauges is as follows:—

Up to 1·5 ins. diam., ·057 in. × T.P.I. = maximum angle error.

From 1·5 ins. diam. to 3 ins. diam., ·086 in. × T.P.I. = maximum angle error.

Prices (Workshop or Inspection)

British Standard Whitworth (B.S.W.) and British Standard Fine (B.S.F.) Gauges

Size Ins.	WHIT		B.S.F.		Size Ins.	WHIT		B.S.F.		Size Ins.	WHIT		B.S.F.	
	Plug	Ring	Plug	Ring		Plug	Ring	Plug	Ring		Plug	Ring	Plug	Ring
1/8	20/-	22/-	20/-	22/-	5/8	25/-	28/9	25/-	28/9	1 3/8	41/-	51/-	37/6	46/6
5/32	20/-	22/-	20/-	22/-	11/16	26/3	31/3	26/3	31/3	1 1/2	43/-	54/-	39/6	49/-
3/16	20/-	22/-	20/-	22/-	3/4	27/6	33/6	27/6	33/6	1 5/8	46/6	57/-	42/6	52/-
1/4	20/-	22/-	20/-	22/-	13/16	29/3	36/-	29/3	36/-	1 3/4	49/6	60/-	44/9	55/6
5/16	21/-	23/3	21/-	23/3	7/8	31/-	38/-	31/-	37/6	1 7/8	53/-	63/-	48/3	57/3
3/8	21/-	23/3	21/-	23/3	15/16	32/6	40/-	32/-	38/9	2	56/-	67/-	51/-	61/3
7/16	22/3	24/6	22/3	24/6	1	34/-	42/6	32/9	40/-					
1/2	22/3	24/6	22/3	24/6	1 1/8	37/-	45/-	34/6	42/6					
9/16	23/9	26/3	23/9	26/3	1 1/4	39/-	48/6	35/6	44/3					

BRASS THREAD GAUGES
Prices of gauges for brass threads are the same as B.S.F. of corresponding diameter.

British Standard Pipe (B.S.P.) Gas

Size Ins.	Plug	Ring	Size Ins.	Plug	Ring
1/8	22/-	24/-	1	41/-	51/-
1/4	22/-	24/-	1 1/8	45/6	55/6
3/8	25/-	28/6	1 1/4	49/6	60/-
1/2	31/-	38/-	1 3/8	53/6	64/-
5/8	32/6	40/-	1 1/2	56/-	67/6
3/4	34/-	42/6	1 3/4	59/-	72/-
7/8	39/-	48/6	2	65/-	80/-

B.A. Gauges

Size No.	Plug	Ring	Size No.	Plug	Ring
0	24/-	24/-	6	24/-	24/-
1	24/-	24/-	7	30/-	30/-
2	24/-	24/-	8	36/6	36/6
3	24/-	24/-	9	43/6	43/6
4	24/-	24/-	10	50/-	50/-
5	24/-	24/-			

Prices of larger sizes of Whitworth B.S.F. and B.S.P. Gauges on application.

The prices of Reference Gauges are 50 per cent greater than those for Workshop or Inspection Gauges.

Prices for Standard Metric and International Form Gauges; A.S.M.E., U.S.S., U.S.F., and C.E.I. Gauges on application.

In addition to the above standard gauges we can supply a large number of "16 T.P.I.," "20 T.P.I." and non-standard pitch Metric form Gauges at list prices for B.S.F. and Standard Metric Gauges of corresponding diameter.

Prices of non-standard and double-ended Gauges on application.

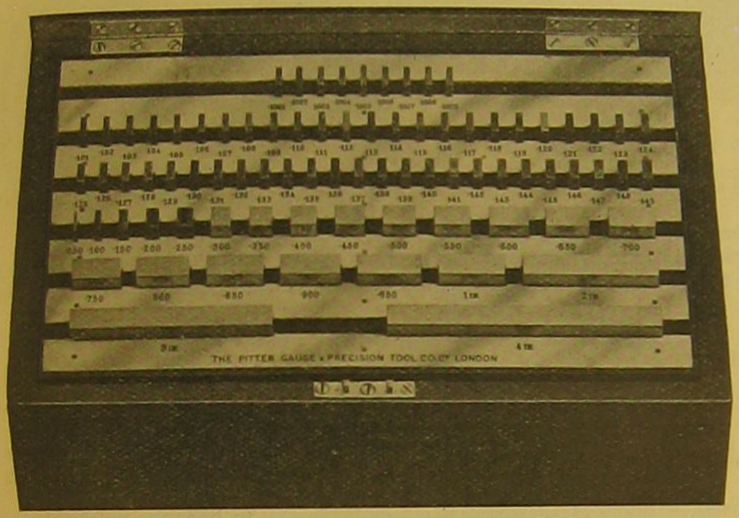
N.P.L. Certificates will be supplied when required and charged at cost.

WORKSHOP PRECISION GAUGES

P.V.E. Precision Gauges (British Made)

P.V.E. Precision Gauges are made in three grades: for Workshop use, for Inspection, and for Reference purposes. **Ordinary grade for Workshop and General use, prices of which are given on request,** are made to an accuracy of one hundred thousandth inch below 1 inch and within one hundred thousandth inch per inch of length above 1 inch. Inspection and Reference grades of Gauges are made to still finer limits, prices will be given on application.

In ordering always specify whether Workshop, Inspection, or Reference grade required.



SET OF SLIP GAUGES, No. E 1

Slip Gauges for Workshop or General Use

Sets in English Units

Set No. E.1. 81 pieces—

Range ...	·1001–·1009	·101–·149	·05–·95	1, 2, 3, 4 ins
Increments ...	·0001	·001	·05	— ,,
No. of Pieces ...	9	49	19	4

Price on application

Set No. E 2. 49 pieces. Makes same number of combination as Set E 1.

Range	·1001–·1009	·101–·109	·11–·19	·01–·09	·1–·9	1, 2, 3, 4 ins.
Increments	·0001	·001	·01	·01	·1	— ,,
No. of Pieces	9	9	9	9	9	4

Price on application

Set No. E 3. 41 pieces. This set differs only from E 2 by the omission of the thin series ·01 to ·09 inch, and the inclusion of a ·05 piece.

Price on application

Set No. E 4. 35 pieces. A useful set, where sizes are only required in steps of one-thousandth inch.

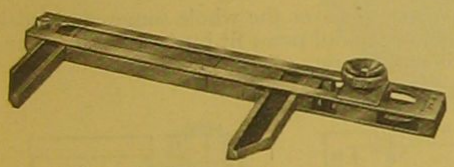
Range	·101–·109	·11–·19	·1–·9	1, 2, 3, 4	·10025	·1005	·10075	·05 ins.
Increments	·001	·01	·1	—	—	—	—	— ,,
No. of Pieces	9	9	4	1	1	1	1	1

Price on application

Set No. E 5. 28 pieces. A thin series as accessories to the other sets.

Range	·0201–·0209	·021–·029	·01–·09	·02005 inch
Increments	·0001	·001	·01	— ,,
No. of Pieces	9	9	9	1

Price on application

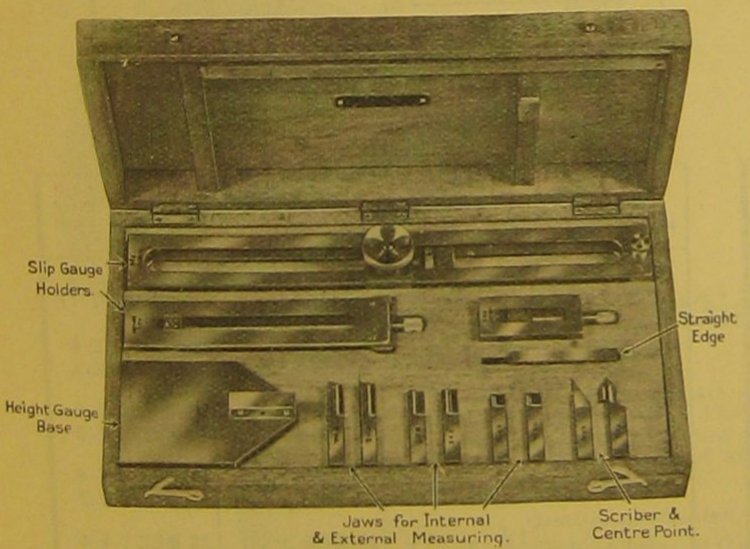


Slide with Slips and Jaws in use as Length Gauge.

Sets of Fractional Sized Gauges

Set No. E 7. In Case—$\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2 ins.
Set No. E 8. In Case—$\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 in.
Set No. E 9. In Case—$\frac{1}{32}$, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2 ins.

Prices on application



Set of Slip Gauge Accessories, consisting of 3 pairs of Jaws, sizes A, B, and C, Scriber and Centre Point, Holders 1, 4, and 8 inch, Base, and 3-inch Straight Edge.

Prices and particulars of above and other Sets of Slip Gauge Accessories on application.

Accessories for Slip Gauges

Jaws for taking Internal or External measurements with Slip Gauges, made in 3 sizes:—

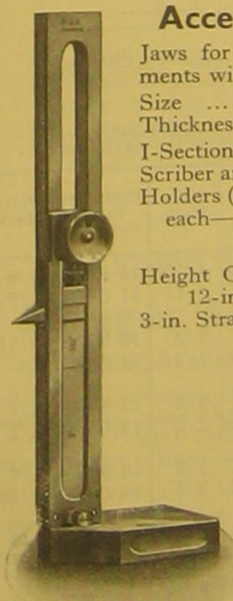
Size	A	B	C
Thickness of each Jaw, in.	·1	·2	·25

I-Section External Jaws, 4 ins. long
Scriber and Centre Point
Holders (or Slides) to take Jaws and Slip Gauges, each—1 in., $2\frac{1}{2}$ ins., 4 ins., 6 ins., 8 ins., 12ins.

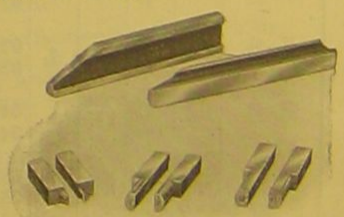
Prices on application

Height Gauge Base for converting the 6, 8, or 12-in. Holder into a Height Gauge
3-in. Straight Edge 8-in. Straight Edge.

Prices on Application.



Slide with Slips, Base, and Scribing Point, in use as Height Gauge



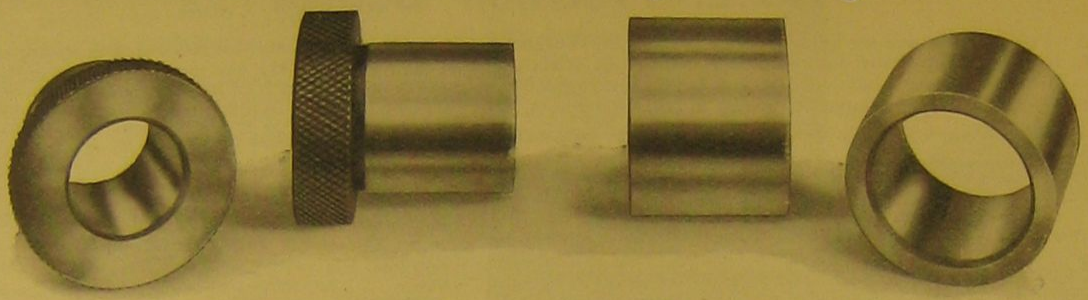
Various Jaws for use with Slip Gauges.

P.V.E. Combination Length Bars for workshop use, together with the Slip Gauges shown above, give all sizes from 0·2 inch to 40 inch in steps of 1/10,000 inch, *i.e.*, nearly 400,000 different sizes, each intrinsically true to five parts in a million.

Full particulars of other P.V.E. Precision Gauges will be sent on application.

JIG BUSHINGS

"Bee Gee" Standard Jig Bushings (British Made)



"Bee Gee" Standard Jig Bushings have been introduced to facilitate the economical manufacture and use of Jigs and to cheapen their production.

They are made from a high-grade carbon tool steel, scientifically hardened and ground to very fine limits.

The range of sizes listed below will afford a wide selection, designed to cover most needs.

Four distinct types are listed in sizes ranging from $\frac{1}{8}$ to 2 ins. with gradings fractional, decimal, and metric. They are as follows:—

Type "0."—Head Pressed Fit Bush.

These are for use in jigs when drilling is only done from one side.

Type "1."—Headless Press Fit Bush.

These are for use when drilling is done from both sides of the jig or when the holes are closely spaced.

Type "2."—Slip Bush.

These are for use where more than one tool is used to produce a particular hole, or where the jig is used for drilling a clearance and tapping hole in mating parts.

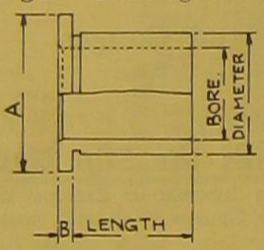
Type "3."—Liners for Slip Bush.

These are for use whenever slip bushes are used, thus avoiding the necessity of purchasing slip bushes for each individual jig.

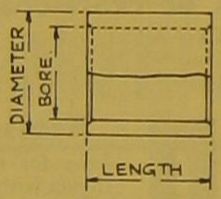
In the manufacture of Jigs, in which slip bushes are used, if liners are adopted it is not necessary to bore the holes to very fine limits of diameter, as when the liners are fitted they can be ground on the outside to suit individual holes. **Further, the accuracy of such jigs is maintained** for a considerably longer period by adopting liners in conjunction with slip bushes, as the slip bush does not then come into contact with the relatively soft cast-iron jig.

Outside Diameters—As only eight different outside diameters of bush are necessary to cover the whole range, the outlay on tools for the production of jigs can be kept to a minimum. Unless specially asked for, all press fit bushes and liners are left ·020 inch over the size on the body diameter to permit their being ground to suit the jig.

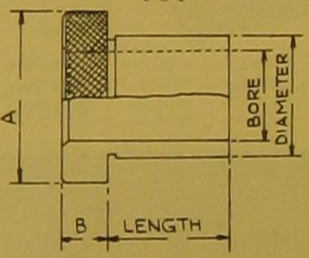
Lengths—Each range of bush is made in two lengths to suit two thicknesses of jig plate.



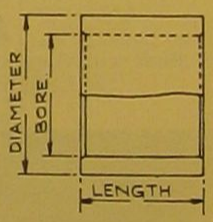
"0" TYPE BUSH—PRESS FIT WITH COLLAR



"1" TYPE BUSH—HEADLESS PRESS FIT



"2" TYPE SLIP BUSH



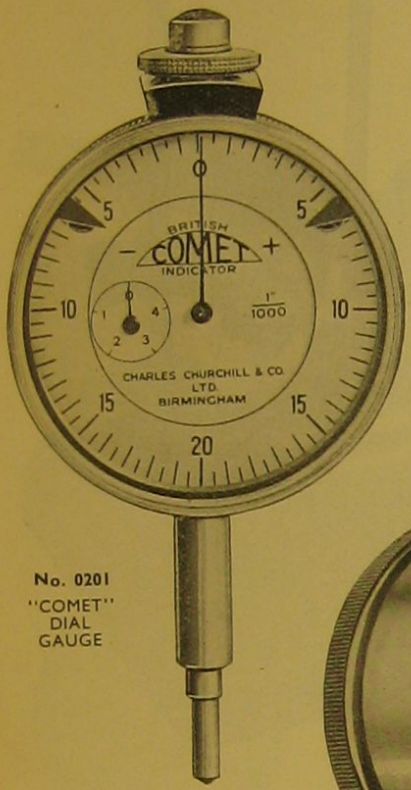
"3" TYPE LINER

Bore Ins. From	To	Dia. Ins.	Length Ins.	A. Ins.	B. In.	Head Press Type No.	Price Each	Headless Press Type No.	Price Each
$\frac{1}{8}$	$\frac{7}{32}$	$\frac{3}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	$\frac{31}{64}$	$\frac{3}{32}$	01 BEE 01 GEE	1/10 1/11	11 BEE 11 GEE	1/8 1/9
$\frac{15}{64}$	$\frac{25}{64}$	$\frac{5}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	$\frac{47}{64}$	$\frac{1}{8}$	02 BEE 02 GEE	2/2 2/3	12 BEE 12 GEE	1/11 2/-
$\frac{13}{32}$	$\frac{41}{64}$	$\frac{7}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	$1\frac{3}{64}$	$\frac{9}{64}$	03 BEE 03 GEE	2/4 2/5	13 BEE 13 GEE	2/1 2/2
$\frac{21}{32}$	$\frac{29}{32}$	$1\frac{3}{16}$	$1\frac{31}{32}$ $1\frac{7}{32}$	$1\frac{27}{64}$	$\frac{5}{32}$	04 BEE 04 GEE	3/5 3/7	14 BEE 14 GEE	2/8 2/10
$\frac{15}{16}$	$1\frac{1}{4}$	$1\frac{9}{16}$	$1\frac{3}{32}$ $1\frac{11}{32}$	$1\frac{55}{64}$	$\frac{3}{16}$	05 BEE 05 GEE	4/2 4/5	15 BEE 15 GEE	3/4 3/7
$1\frac{9}{32}$	$1\frac{21}{32}$	2	$1\frac{7}{32}$ $1\frac{15}{32}$	$2\frac{23}{64}$	$\frac{1}{4}$	06 BEE 06 GEE	5/- 5/5	16 BEE 16 GEE	4/4 4/8
$1\frac{11}{16}$	2	$2\frac{1}{2}$	$1\frac{11}{32}$ $1\frac{19}{32}$	$2\frac{63}{64}$	$\frac{5}{16}$	07 BEE 07 GEE	6/9 7/1	17 BEE 17 GEE	5/6 6/1

†Bore Ins. From	To	†Dia. Ins.	Length Ins.	A. Ins.	B. In.	Slip Bushing Type No.	Price Each	† Liners Type No.	Price Each
$\frac{1}{8}$	$\frac{7}{32}$	$\frac{3}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	$\frac{3}{4}$	$\frac{1}{4}$	21 BEE 21 GEE	2/1 2/3	31 BEE 31 GEE	1/9 1/11
$\frac{3}{16}$	$\frac{13}{32}$	$\frac{5}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	1	$\frac{5}{16}$	22 BEE 22 GEE	2/4 2/6	32 BEE 32 GEE	2/1 2/2
$\frac{13}{32}$	$\frac{21}{32}$	$\frac{7}{8}$	$\frac{15}{32}$ $\frac{25}{32}$ $1\frac{25}{32}$	$1\frac{1}{4}$	$\frac{3}{8}$	23 BEE 23 GEE	2/7 2/9	33 BEE 33 GEE	2/6 2/8
$\frac{41}{64}$	$\frac{29}{32}$	$1\frac{3}{16}$	$1\frac{31}{32}$ $1\frac{7}{32}$	$1\frac{11}{16}$	$\frac{7}{16}$	24 BEE 24 GEE	4/1 4/3	34 BEE 34 GEE	3/4 3/7
$\frac{7}{8}$	$1\frac{5}{16}$	$1\frac{9}{16}$	$1\frac{3}{32}$ $1\frac{11}{32}$	$2\frac{1}{4}$	$\frac{1}{2}$	25 BEE 25 GEE	5/1 5/4	35 BEE 35 GEE	4/4 4/8
$1\frac{3}{16}$	$1\frac{11}{16}$	2	$1\frac{7}{32}$ $1\frac{15}{32}$	$2\frac{3}{4}$	$\frac{1}{2}$	26 BEE 26 GEE	6/8 7/3	36 BEE 36 GEE	5/6 6/1
$1\frac{7}{16}$	2	$2\frac{1}{2}$	$1\frac{11}{32}$ $1\frac{19}{32}$	$3\frac{1}{4}$	$\frac{1}{2}$	27 BEE 27 GEE	8/3 9/-	37 BEE 37 GEE	7/8 8/3

†**LINERS**—

Nos....	31	32	33	34	35	36	37	
Bore	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$1\frac{3}{16}$	$1\frac{9}{16}$	2	$2\frac{1}{2}$	ins.
Diam.	$\frac{5}{8}$	$\frac{7}{8}$	$1\frac{3}{16}$	$1\frac{9}{16}$	2	$2\frac{1}{2}$	3	,,



No. 0201
"COMET"
DIAL
GAUGE

COMET
Dial Gauges No. 0201

Reading in 1/1000th inch.

These British made "Comet" Dial Indicators are built to conform to N.P.L. Standards and are **guaranteed to an accuracy of ±·0005 inch** over the whole travel.

"Comet" Dial Gauges are solidly built and will give long and consistent service under all conditions.

The case is made of solid brass, is heavily nickel-plated. It is fitted with detachable lug at the back and is oil-proof and dust-proof.

All Gears and Racks are interchangeable.

Dial is graduated 0-20-0 and calibrated ·005 inch, and is non-tarnishable.

Spindle Travel is ·2 or ·4 inch.

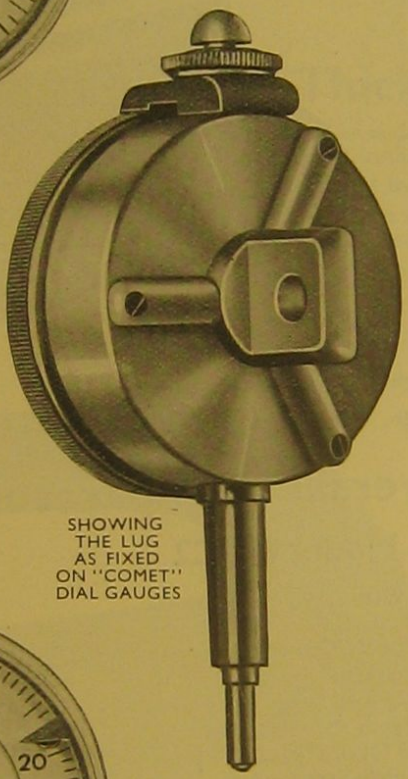
The Adjustable Setting Ring can be locked in any position by the nut at top of spindle.

Adjustable Tolerance marks are fitted to the gauges.

Separate small hand shows number of revolutions of large hand.

Outside Diam. of Gauge, $2\frac{1}{16}$ ins.; Spindle Travel, $\frac{2}{10}$ or $\frac{4}{10}$ ins.; Weight, $4\frac{1}{4}$ ozs.

No. 0201 Gauge. Reading 1/1000th inch.
Price £2 5 0 each.



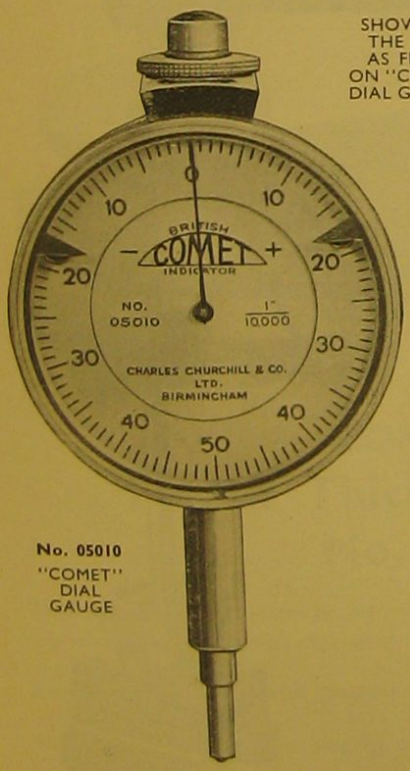
SHOWING
THE LUG
AS FIXED
ON "COMET"
DIAL GAUGES

COMET
Metric Dial Gauges No. 050M

Reading in 1/100th m/m.

"Comet" Gauges are also supplied with the **dial marked 0-50-0,** calibrated ·01 m/m. and with spindle travel of 5 m/m. or 10 m/m.

No. 050M. Metric Gauge. Reading 1/100th m/m.
Price £2 5 0 each.



No. 05010
"COMET"
DIAL
GAUGE

COMET
Dial Gauges No. 05010

Reading in 1/10000 inch.

These Gauges are similar in construction and specification to the No. 0201 shown above. They maintain the same high degree of accuracy, which is a recognised feature of **"Comet" Dial Gauges, and are recommended where work of an exceptionally high standard of accuracy is to be gauged.**

Dial is graduated 0-50-0 and calibrated to ·0001in.

Outside Diam. of Gauge, $2\frac{1}{16}$ ins.; Spindle Travel, ·02 in.; Weight, $4\frac{1}{4}$ ozs.

No. 05010. Gauge, Reading 1/10000th in. **Guaranteed accurate to ·0002 in.** **Price £3 18 0 each.**

No. 05010A. Gauge, Reading 1/10000th in. **Guaranteed accurate to ·0001 in.** **Price £4 18 0 each.**

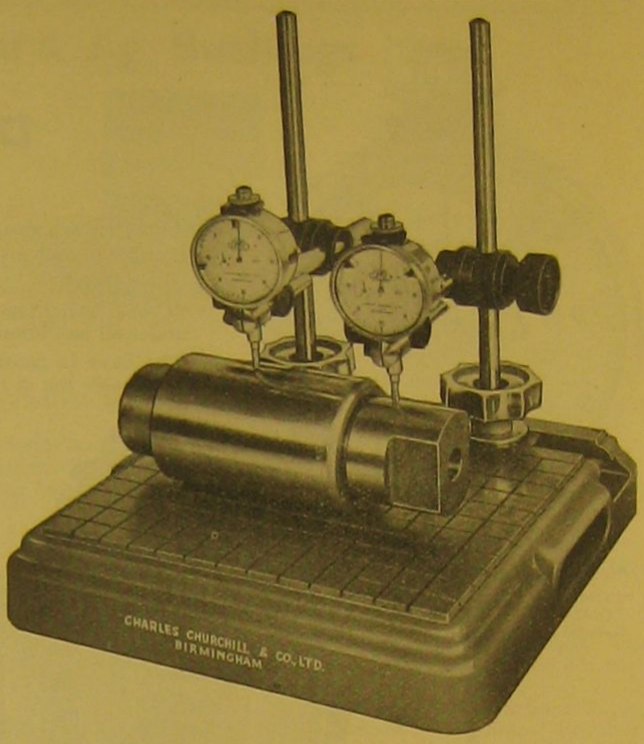
All "Comet" Gauges are fitted with Detachable Contact Points. **"Wimet" Tipped Points can be supplied at an extra charge of 10/- per Gauge.**

Being subject to improvement in design all models are liable to alteration without notice.

COMET
Dial Gauge Comparators

Model DC1

Comparator Table



For testing flat, or round components these tables can be used to gauge simultaneously two or more dimensions, by using extra standards, as shown in the illustration.

The Comparator can be quickly set to any desired standard by vertical and lateral adjustments, and can also be used as a caliper gauge by setting the dial in a lateral position and using a fixed point in the second standard.

Work Table is lapped and measures 8½ ins. by 7 ins. Foreign matter is automatically removed from the ground table.

The table surface is regularly supplied grooved all over, as illustrated, but when desired can be had with half the surface only grooved and the other half plain.

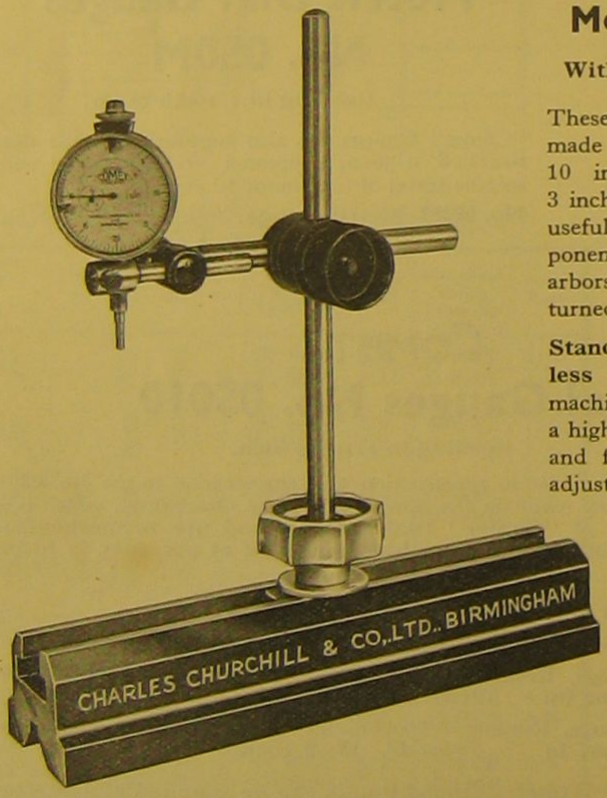
Standards are of stainless steel. Work up to a height of 10 ins. can be gauged.

Price, with one Standard, without Dial Gauge, £7 10 0. **Extra Standards only, each £3 0 0**

COMET Universal Comparator

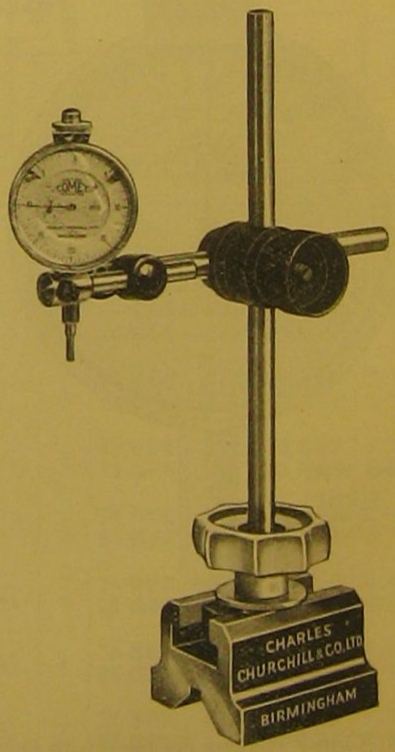
Model DUC2

With Two-way Joint



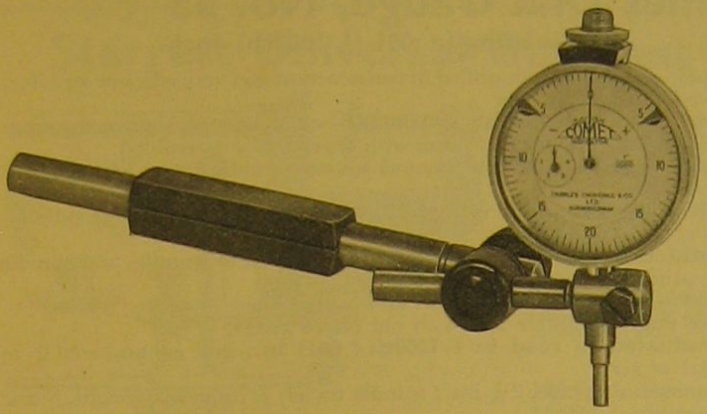
These Comparators are made in two sizes, with 10 inch slide or with 3 inch slide, and are very useful for gauging components, testing spindles, arbors, machine beds and turned work, etc.

Standards are of stainless steel, bases are machined and finished to a high degree of precision and fitted with universal adjustments.



Price, 10 inch Slide with Standard but without Dial Gauge £4 10 0
Price, 3 inch Slide with Standard but without Dial Gauge £4 0 0

DIAL INDICATOR THICKNESS GAUGES



COMET
Universal Indicator Holder, No. DH3

Made of Stainless Steel

Length overall, 7¾ ins.

Price with Vice Sleeve but without Dial Gauge, £1 5 0

Price with Two-way Joint as shown on Model DUC2, but without Dial, £1 10 0

COMET
Bench Thickness Gauge No. BG4

The design of these Gauges makes them particularly suitable for the rapid inspection of paper, sheet metal, rubber, insulating and other flat material, etc.

The Dial Spindle is raised by the lever attachment.

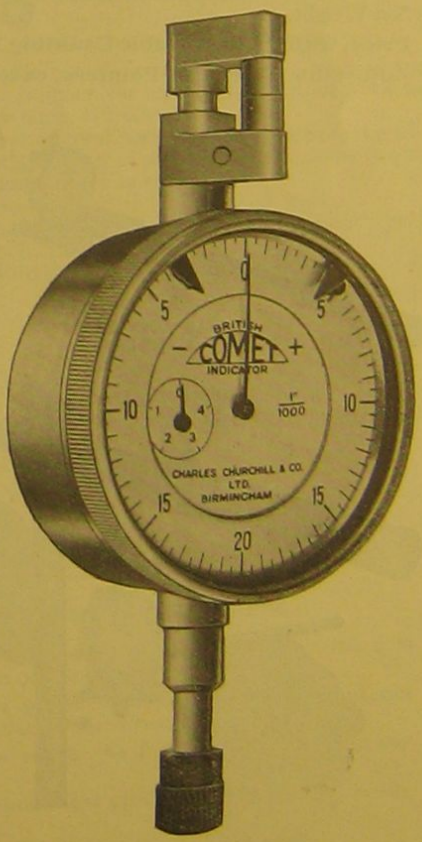
The Knurled bottom platen is ground and lapped, can be set to desired position and locked by means of the screw shown in the base.

This platen can also be supplied with V grooves for gauging round work.

Price, 3 inch size Gap, without Dial £2 10 0

Price, 6 inch size Gap, without Dial £3 0 0

Extra for Lever Raising Attachment to Dial 2/6 each.



COMET
Pocket Thickness Gauge No. PG5

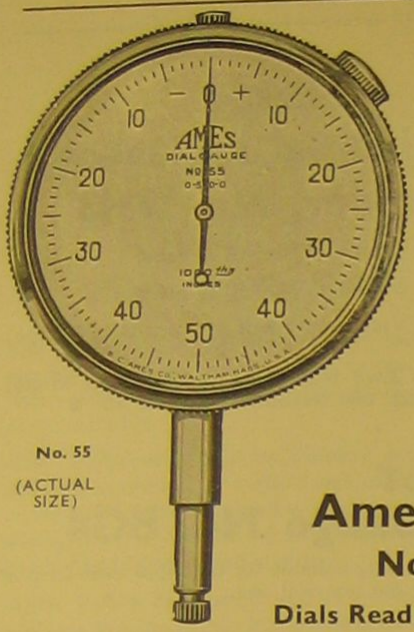
This is an ideal instrument for measuring material such as paper, cardboard, rubber, small components, etc., up to ·2 inch in thickness.

Anvils are hardened and ground.

The gauge is of convenient size for carrying in the pocket.

Dial is graduated 0-20-0 and reads in 1/1000th inch.

Price £3 10 0 complete



No. 55

(ACTUAL SIZE)

Ames Dial Gauge, No. 55 (Made in U.S.A.)

Dial Reading in ·001 (1/1000th) inch.

These popular Gauges are simplified in construction and very efficient and durable in service.

The plate has the wheel assembly and guide block on one side and on the other the dial spring, dial pointer and bezel with crystal fully assembled.

Guide Block is of hard brass, ensures smooth spindle action and prevents side play.

Removable Case stem can be unscrewed from case to expose spindle for cleaning.

Top Spindle Bearing gives a long bearing surface to spindle, and spindle bushing is protected from dust by a guard.

Bezel is held in place by spring tension and cannot work loose

All parts are interchangeable and with old No. **5** gauge.

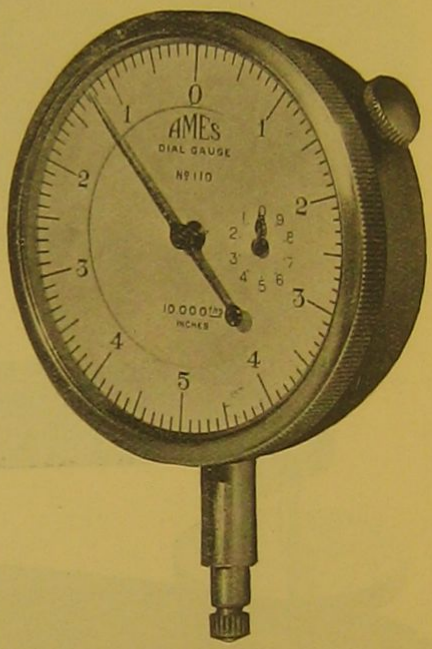
Dial is graduated to read in 1/1000th (·001) in., and is numbered 0 to 50 either side of zero.

Outside diameter of gauge, 2 1/16 ins.; spindle travel, 3/10ths in.; weight, 5 ozs.

Price ... ... **£2 1 6 each**

Ames Dial Gauges, Nos. 100 and 110.

Dials Reading in ·0001 (1/10000th) inch



A large, rugged, accurate easy-reading Gauge for general shop use, having an added diameter which gives still greater width of dial graduation spacings.

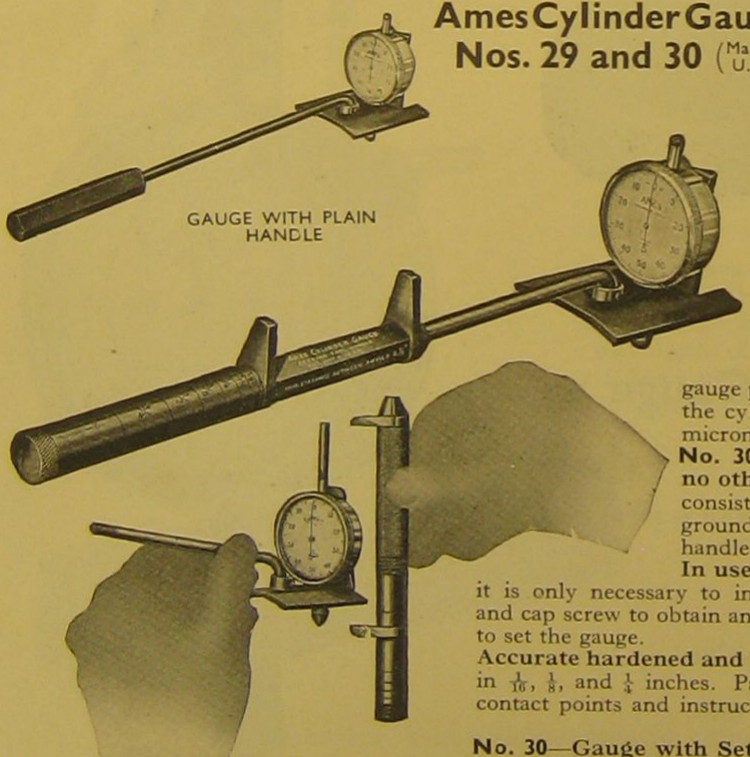
Spindle motion is exceptionally smooth, and pointer moves without the slightest jerkiness.

Movable Balance Counting Dial, 0–50–0, regularly fitted, reading in tenths of thousandths (·0001) in. (as illustrated).

Tolerance Pointers—Two red pointers can be attached to and under the crystal and adjusted for either side of zero by means of knurled caps.

Dial Gauge No.	**100**	**110**
Outside Diameter, ins	2 3/4	2 9/32
Spindle Travel, ins	1/10th	1/10th
Net Weight, ozs.	10	8
Price, with Plain Movable Counting Dial	**£5 4 3**	**£5 4 3**
Adjustable Tolerance Pointers, extra	**10 6**	**10 6**

Ames Cylinder Gauges, Nos. 29 and 30 (Made in U.S.A.)



GAUGE WITH PLAIN HANDLE

SHOWING THE SETTING TOOL HANDLE IN USE

These Gauges have a bottom fixed point and top movable point bearing and are moved in and out of cylinders. They test all cylinders for straightness and roundness, accurately measure taper and "out of roundness," compare sizes of various cylinders and tell the amount of oversize pistons and rings to use.

No. 29 with Plain Handle—dial is set by means of a micrometer. When the gauge is removed from the cylinder the top and bottom contact points are placed in the micrometer. The micrometer barrel is then turned to bring the gauge pointer to the same position on the dial as when in the cylinder. The cylinder diameter is then read from micrometer.

No. 30, with Setting Tool Handle—self-contained, no other tool is required. The Setting Tool Handle consists of a rod and two ground anvils. A series of ground washers of different thicknesses is carried on the handle together with a cap screw.

In use, the handle, washers, anvil, etc., are detached, and it is only necessary to insert required washers and replace movable anvil and cap screw to obtain an extremely accurate measuring distance by which to set the gauge.

Accurate hardened and ground washers, take all cylinders within capacity. in 1/16, 1/8, and 1/4 inches. Packed in metal container including complete set of contact points and instruction book.

Prices

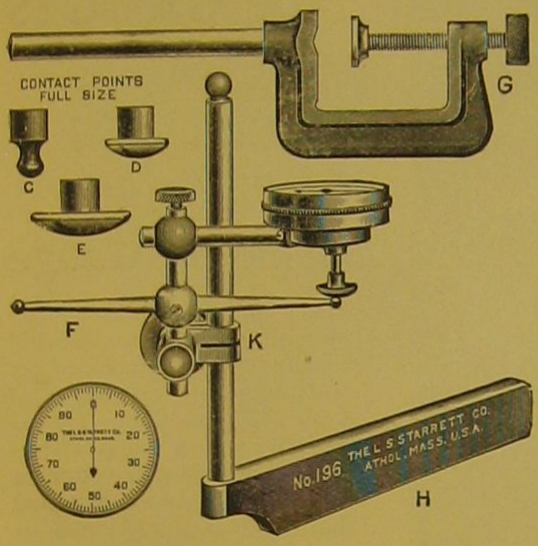
No. 30—Gauge with Setting Tool Handle, capacity 2 3/16 to 5 1/2 ins. ... ... **£4 14 0 each**

No. 29—Gauge with Plain Handle, capacity 2 3/16 to 5 1/2 ins. **4 0 6 ,,**

Points for larger diameter cylinders can be furnished at extra cost.

TEST INDICATORS

Starrett Universal Dial Test Indicator, No. 196 (Made in U.S.A.)



Circumference of dial divided into 100 equal spaces, each representing a movement of the contact point of 1/1000 inch. One rev. of hand therefore indicates 1/10 inch the capacity of the instrument being two-tenths. By pressing contact point against work sufficiently to give the hand one full turn, then setting it at 0, one full revolution of hand to both right and left of 0 may be obtained, showing a rise or drop in work and the amount of variation. By turning knurled rim the dial may be moved to bring the 0 mark to any point desired. Each indicator has three hardened contact points for different classes of work. The special tool post and sleeve are useful in lathe work. For general work the indicator with sleeve **K** is adapted for use with 9 or 12 inch surface gauges.

The clamp **G** enables the indicator to be attached to large lathe and planer tools, milling arbors, etc. The attachment **F** adapts it for use inside holes, to reach over blockings on face-plates, etc.

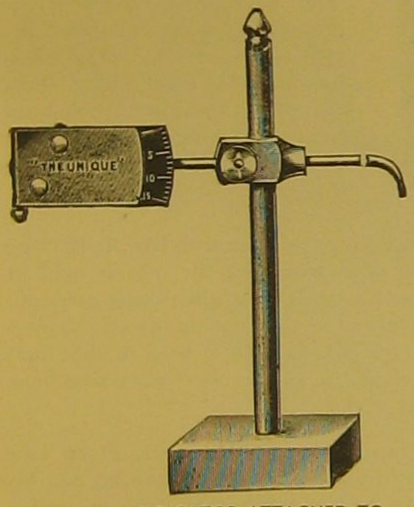
Prices

196A—Indicator with all Attachments, as shown	**£3**	**18**	**6**
196B—Indicator only, with 3 Contact Points	**2**	**16**	**0**
196F—Hole Attachment	**0**	**11**	**3**
196G—Clamp	**0**	**5**	**9**
196H—Tool Post	**0**	**5**	**9**
196K—Sleeve	**0**	**5**	**9**
Extra Contact Points, each	**0**	**1**	**0**

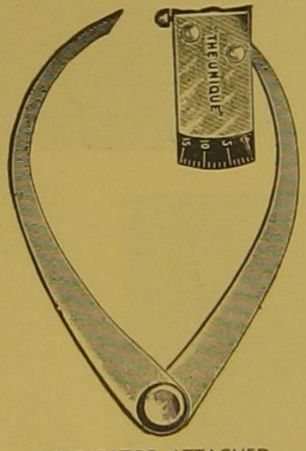
Indicator complete will be sent unless otherwise ordered.
Metric sizes same prices as above.

"Unique" Test Indicator (British Made)

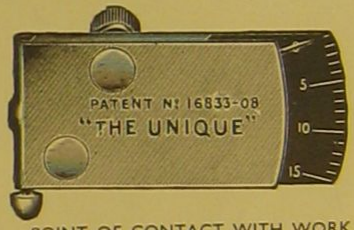
For attaching to Scribing Blocks and Calipers



INDICATOR ATTACHED TO SCRIBING BLOCK



INDICATOR ATTACHED TO CALIPERS

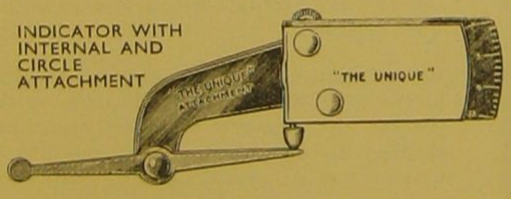


POINT OF CONTACT WITH WORK

This Indicator is for attaching to any scribing block or calipers, for testing the truth of work on machine table, lathe, etc.
It is fastened by thumb-nuts in a horizontal position to the scriber of the scribing block, or to one leg of the calipers as shown.
The contact point is of hardened steel.
Each graduation represents one-thousandth part of an inch.
Thick lubricating oil should not be used.

Price ... ... **3/6 each**

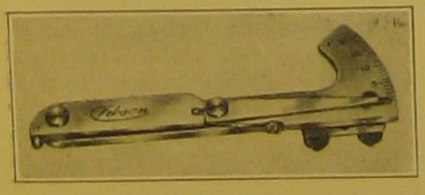
INDICATOR WITH INTERNAL AND CIRCLE ATTACHMENT

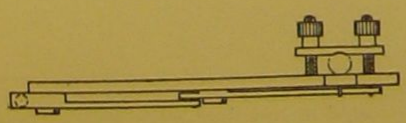


An attachment for use with "Unique" Indicators, for internal testing or testing centre of a circle can be supplied at **extra cost of 2/9 each.**

Febson Indicator (British Made)

For Internal and External Measurement





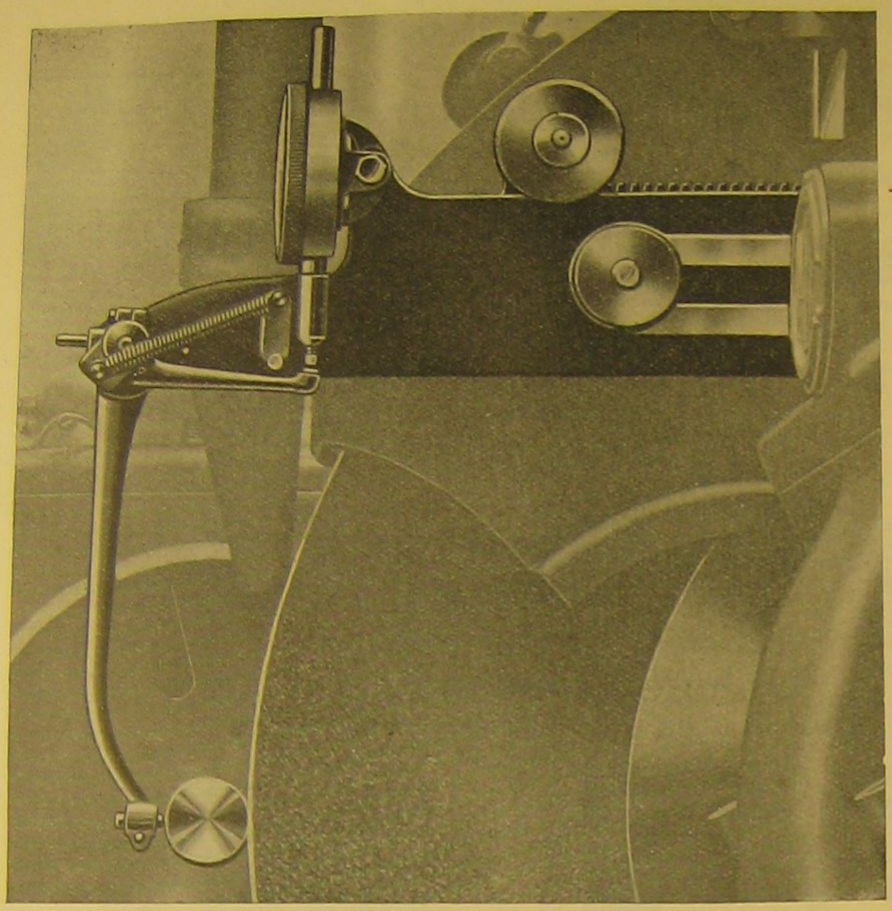
This Indicator will register to 1/1000th of an inch any variation in the surface level or diameter of an object.

Designed for attaching to the pillar of a surface gauge, but can be fitted to any suitable pillar for use on machines, etc.

Fitted with spring control, to enable the indicator to be used in any position.

Made of nickel silver **with hardened steel studs,** this is a reliable, sensitive, and accurate instrument.

Price ... ... **8/9 each**

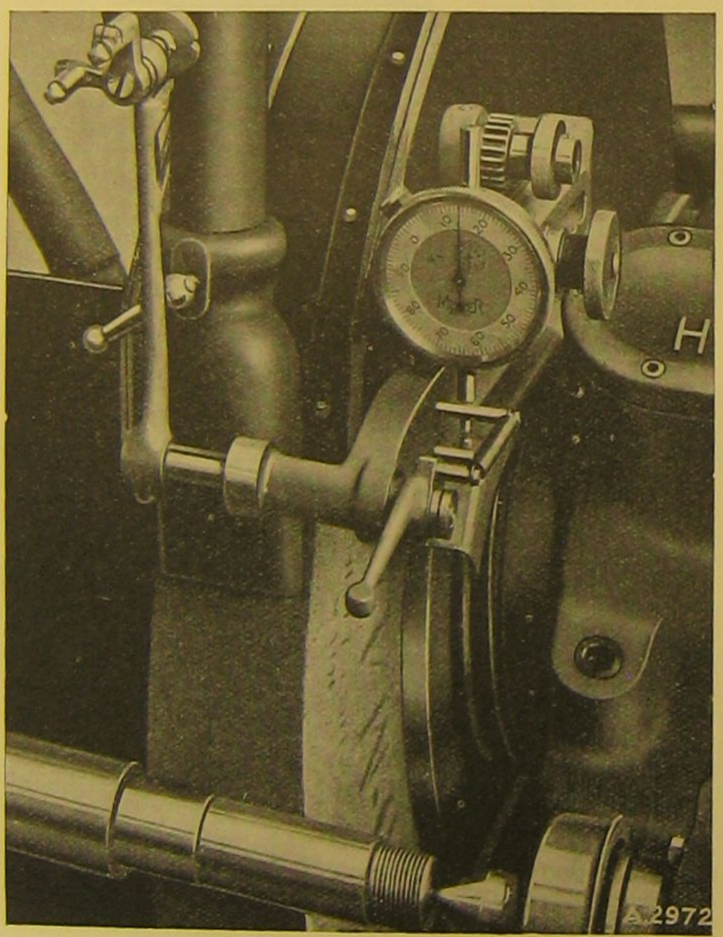


GRINDING MACHINE GAUGES

Churchill "Sizex" Grinding Gauge

The "Sizex" Grinding Gauge designed for use on Churchill Standard Plain Grinding machines reads accurately irrespective of deflection of the work. **This is the only sizing gauge showing work reduction during traverse and plunge grinding** and is applicable to splined work as well as plain shafts.

The principle employed is that of calipering a diameter, the face of the grinding wheel forming one side of the caliper whilst the other side is a movable arm, transmitting its movement to a dial gauge conveniently placed in the operator's line of vision.



The contact point of the moving arm consists of a diamond, and the arm is held in contact with the work by a light spring pressure. A tension spring is used and is placed so that when the arm is raised it is held in the "up" position and is not in the way when removing or inserting work.

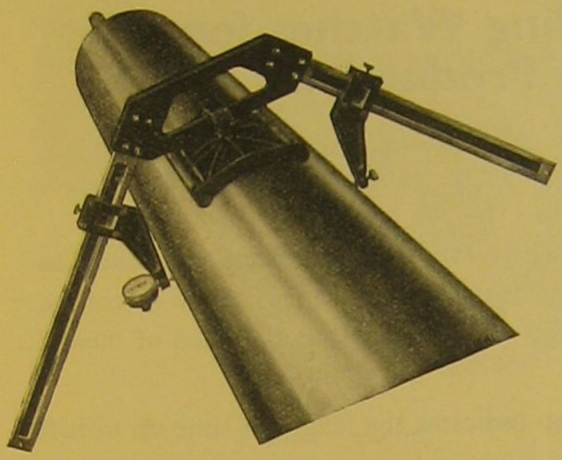
Several diameters on one work piece can be sized by means of a device which can be fitted at the end of the arms. In such cases a small spider fitted with the appropriate number of fingers is fitted to the arm. For splined or key-wayed work a formed shoe replaces the diamond contact point.

By adjustment of the carrying slide the gauge can be quickly set for various sizes of work. After the first piece has been sized and checked the dial is set so that size is indicated by zero and is repeated on subsequent pieces.

The dial of the gauge is graduated to ·001 ins. Whilst for finer limit work it can be supplied to read to ·00025 ins. per graduation. The graduations are spaced very openly, and finer readings can be easily estimated.

Price ... On Application

Fig. 2. Showing two diameter spider fitted at the end of caliper arm and raised clear of work.



Churchill Roll Caliper (British Made)

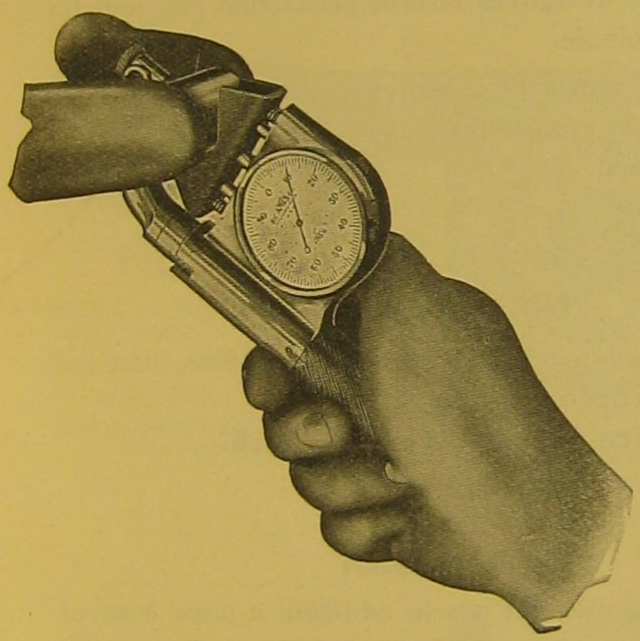
Specially designed for checking straight and cambered rolls, is supported on the roll by two accurately ground bars of sufficient length to ensure seating squarely on the roll. The caliper is supported by the bracket carrying the bars, and is free to swing only at right angles to the axis of the bar.

The right-hand arm of the caliper carries an adjusting screw, and the left-hand arm an indicating clock gauge. The brackets carrying the adjusting screw and the clock gauge can be set along the arms by graduations corresponding with different roll diameters.

For parallel rolls the movement of the caliper from end to end enables the parallelism to be checked, while with cambered rolls the different positions of the caliper directly indicate on the dial the amount and regularity of the camber, either concave or convex.

Size	Capacity	Price
No. 1.	Min. diam. of roll, 9 ins.: max. diam., 30 ins. ...	**£30 0 0**
No. 2.	,, ,, ,, ,, 15 ins.: ,, ,, 40 ins. ...	**36 0 0**

The maximum camber shown by dial indicator for sizes Nos. 1 and 2 is $\frac{5}{16}$ in.



Ames Crankshaft Gauge

(Made in U.S.A.)

Designed for testing accuracy and exact diameters of crankshafts, crank pins, and wrist pins, this tool is speedy in operation.

When to use it:—

After removing worn bearings from a crankshaft, apply an Ames Crankshaft Gauge to make sure that the crank pins are perfectly round.

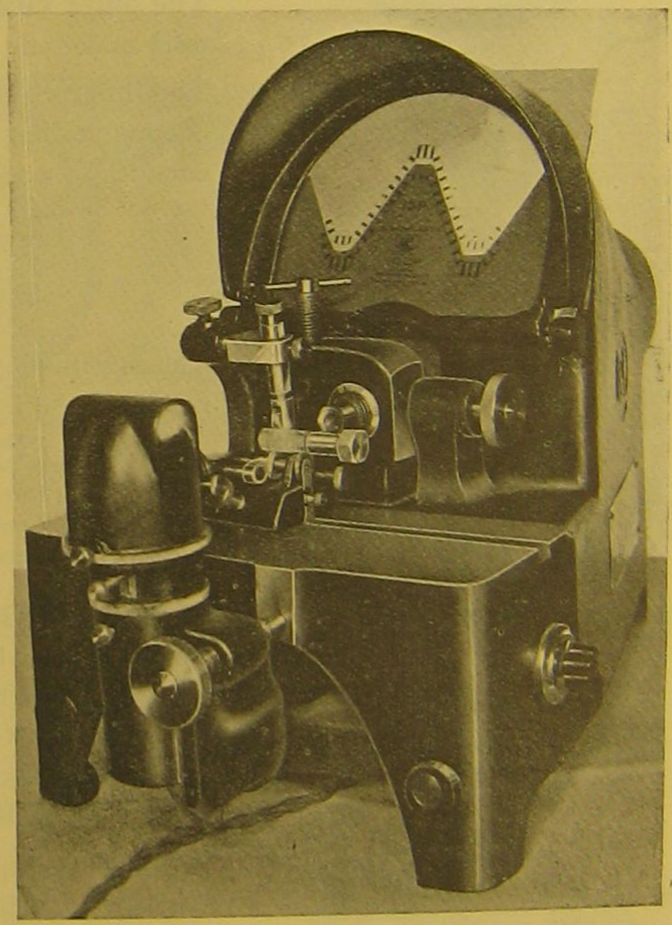
This may be done without removing crankshaft from motor. The slightest amount of wear, which would cause imperfect fitting of bearings will be instantly and accurately shown by motion of pointer on dial face of Gauge, which is graduated in thousandths of inches. Only a few seconds are needed to attach, operate, and remove the Gauge.

When reboring connecting rod bearings, the Gauge is used to measure the shaft or crank pin.

Wrist pins, shafts, and other parts of 1 in. diameter or more can also be tested for roundness and size with the Ames Crankshaft Gauge.

Made in two sizes, one for round parts, 1 to 2¼ ins., and another for capacity 2 to 3¼ ins.

Price **£4 2 6**



Hartness Screw Thread Comparator

(Made in U.S.A.)

This is a small optical projection machine for the rapid and accurate inspection of screw threads or other irregular profiles of many varieties. It operates from the lighting circuit and occupies very little bench space.

A large magnification of the outline of the thread—which is enlarged fifty times—**is projected on to the tolerance chart** at a distance of about 15 ins. from the eye, where it can be read with ease and accuracy by the operator sitting directly in front of the instrument.

The comparator is supplied complete with the necessary fixtures.

Full particulars sent on request.

No. 1

No. 19

No. 115

Recording Watches for Timing Production (Foreign)

These non-magnetic Watches record accurately, by direct reading, production per hour of work where the operation does not exceed two minutes.

They are intended primarily to enable rate fixers and others to ascertain production per hour on automatics, screw machines, etc., or on certain classes of work, without the need of mental calculation.

The small dial at the top indicates the length of time up to half an hour.

The outer circle of figures records production per hour for work under one minute.

The inner circle shows the quantity on parts taking more than one minute but not exceeding two. The Watches also time to one-fifth of a second.

No. 1 Watch

This is a simple stop watch having a push stem. Stop, start and return. **Case is chromium plated.**

Price - - - £1 13 6 each.

No. 19 Watch

Similar to No. 1 Watch, **but has in addition a slide control on the side, which gives continuous reading.** This useful feature enables floor to floor time, i.e., loading, machining and complete operation times to be taken without turning to zero and starting afresh each time.
Case is chromium plated.

Price - - - £1 17 6 each.

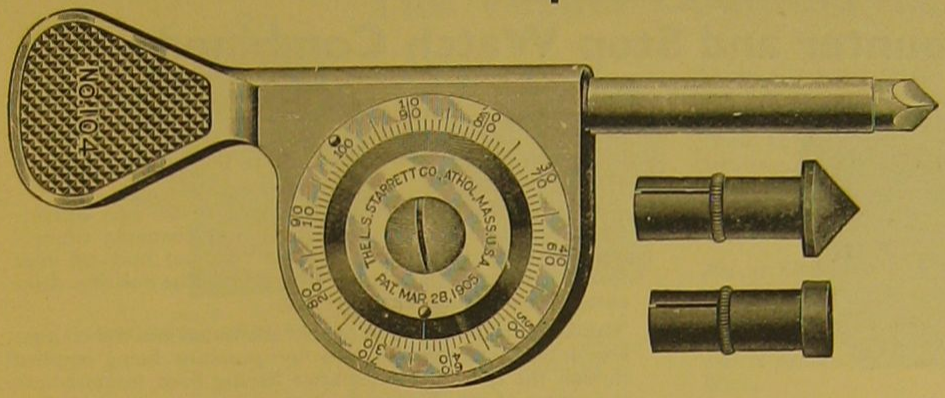
No. 115 Watch

Embodies all the features of No. 19 Watch, but in addition can be used as an ordinary time-keeper. This watch is jewelled in 15 places. It is a very high-class instrument fitted with **chromium plated case.**

Price - - - £6 0 0 each.

SPEED INDICATORS

Starrett Speed Indicators (Made in U.S.A.)



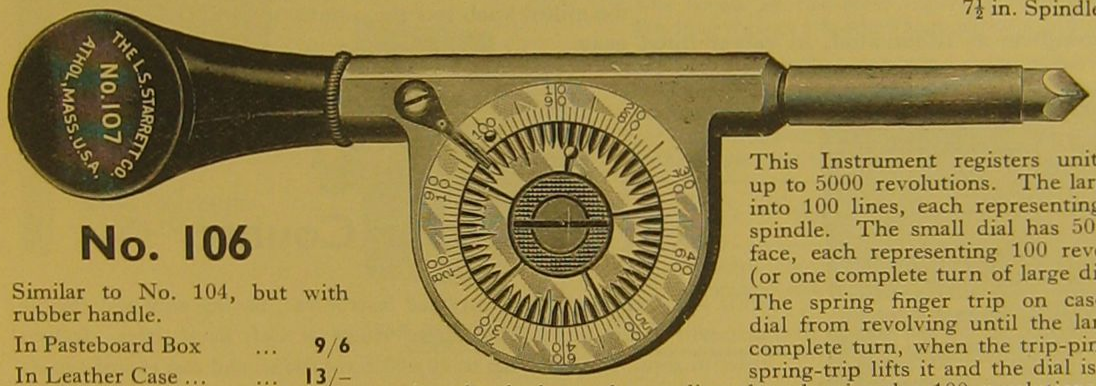
No. 104

The working parts of this Instrument are encased, and the dial plate has two rows of figures, reading right or left, as the shaft may run.

The inner plate is frictionally clamped to the revolving gear by a checked wafer head screw. By a pressure and twist with the thumb the plate is loosened, when the **O** mark may be instantly moved to agree with the starting point, thus saving time revolving the spindle to bring it there.

Two rubber tips supplied, as shown.

Price ... ... **7/- each**
In Leather Case ... **11/-** ,,
Extra Rubber Tips, cone or flat ... **/6** ,,
7½ in. Spindle ... **3/6** ,,



No. 107

This Instrument registers units as well as tens up to 5000 revolutions. The large dial is graduated into 100 lines, each representing one revolution of spindle. The small dial has 50 lines cut upon its face, each representing 100 revolutions of spindle (or one complete turn of large dial).

The spring finger trip on case holds the small dial from revolving until the large dial makes one complete turn, when the trip-pin passing under the spring-trip lifts it and the dial is frictionally carried along by the large plate on line, thus showing that 100 revolutions of the spindle have been made. The instrument has a hard rubber handle making a safe insulator when used on electrical machinery. Nickel-plated.

Rubber Tips. Two rubber tips included with indicator, as shown with No. 104.

Prices—In Pasteboard Box ... ... **£1 0 3** In Leather Case ... **£1 4 3**

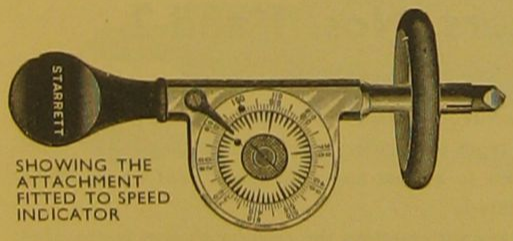
Sent in pasteboard box, unless otherwise ordered.

No. 106

Similar to No. 104, but with rubber handle.

In Pasteboard Box ... **9/6**
In Leather Case **13/-**

Sent in pasteboard box, unless otherwise ordered.



SHOWING THE ATTACHMENT FITTED TO SPEED INDICATOR

Surface Speed Attachment, No. 109

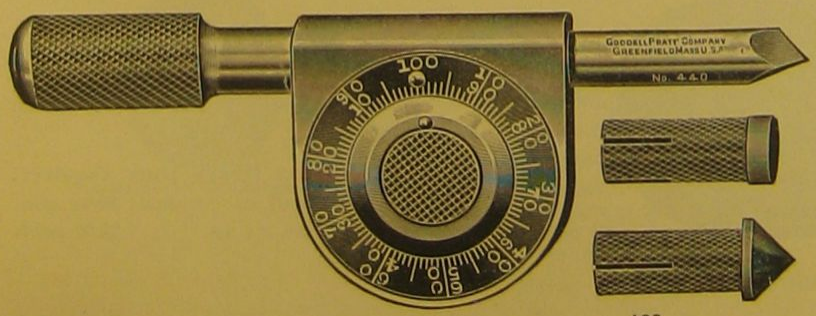
For Speed Indicators

This Attachment applied to one of these speed indicators shows the number of linear feet per minute a shaft or pulley is running. When held against the periphery of a shaft or pulley a half-minute or a minute, by dividing the figures showing the revolutions on dial by 2, the number of surface feet per minute is obtained, as each revolution of the indicator wheel shows six inches; twice around, one foot.

Price ... ... **3/6 each**

Millers Falls—Goodell Pratt Speed Indicator, No. 440

(Made in U.S.A.)



The fixed dial is graduated both ways so that speeds of clockwise and anti-clockwise shafts can be read directly.

The rotating dial is set to zero by turning the knurled thumb screw to the left and tightening after setting.

Two rubber tips are provided for use on centred, plain or pointed shafts.

Nickel-plated finish.

Price ... ... **5/3 each**

"The Probator"
Revolution Counter and Stop Watch Combined (Foreign)

This Counter, in which the watch and counter are connected with each other so that they always work simultaneously, shows exactly and clearly the speed of rotating shafts, etc.

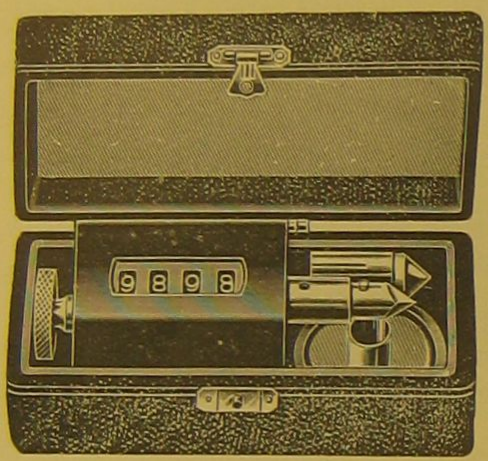
The apparatus is always ready for use and suitable for either direction of rotation without changing connections. **It reads up to 10,000 revs.**, and may be used for speeds up to about 6,000 r.p.m. The positive drive ensures correct and reliable results.

The spindle runs loose so that the watch and the counter are only set into operation by pressure being applied though the spindle rotates after having been inserted into the centre of the shaft under test.

On withdrawing the counter spindle from the test object **both watch and counter stop immediately** and the result can then be read off. One pressure of the finger on the little button winds the watch and simultaneously sets the watch hand to zero for the next test, whilst one turn of the milled knob sets the counter to zero.

The watch will run for one minute, and may be used as a stop watch independently of the counter by fitting the flat cap supplied for the purpose on the spindle. The watch is put into operation in this case by pressing the flat cap on the driving spindle.

Price, complete as illustrated, in velvet-lined case ... ... 36/- each



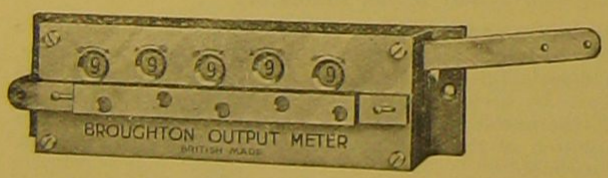
COMET
Revolution Counter (Foreign)

This is a well made, nickel-plated instrument, having only one spindle that will count forward on either Right or Left hand drive. Instant reset to zero. Registers up to 10,000 revolutions, and can record speeds up to 6,000 per minute.

Supplied complete with Surface Speed Attachment in case.

Price, complete 12/- each

Broughton Revolution Counters, Nos. 1 and 2

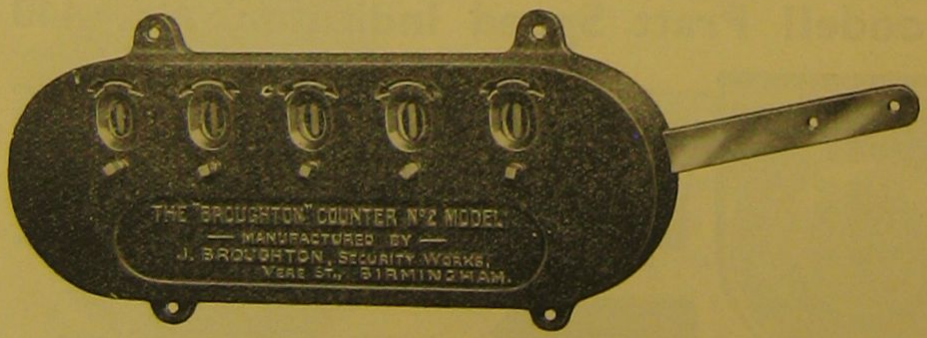


No. 1 COUNTER

Automatic registering of output on all types of production machinery is a vital essential.

With the two types of counters shown herewith either of which can be adapted to almost any machine a total up to 99,999 units is registered.

A detachable key for resetting the counter to zero is provided.



No 2 COUNTER

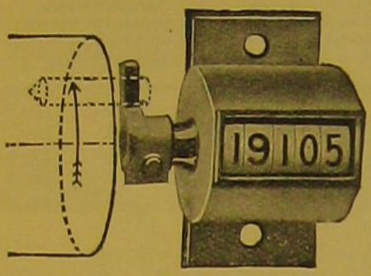
Prices

No. 1 Counter, with brass case. Overall size, without lever arm, 5½ ins. × 1 11/16 ins. **25/- each**

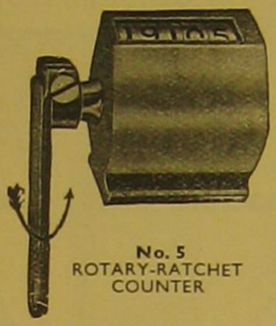
No. 2 Heavy Duty Counter. Overall size, without lever arm, 8½ ins. × 3 ins. **32/6 each**

REVOLUTION COUNTERS

The Veeder Counters (Made in U.S.A.)



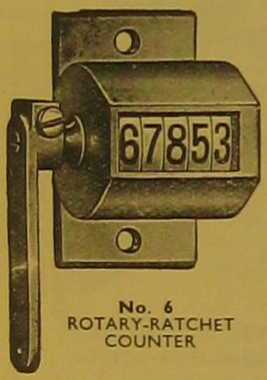
No. 4
REVOLUTION COUNTER



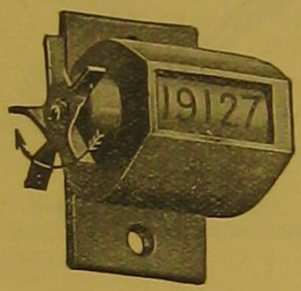
No. 5
ROTARY-RATCHET
COUNTER

These Counters, while small, are strong and durable, and can be run at a high speed without slipping. They are made in a variety of forms to suit various requirements. Their application to looms, printing machines, punching presses, and automatic machines of various kinds will result both in preventing loss of time and error in quantity of the goods to be produced. They can also be used in connection with slot machines, telephones, neostyles, etc.

No. 4 Counter is intended for continuous running machines, and registers one for each complete revolution. It will stand a very high rate of speed. If run backwards it counts backwards. Furnished with lever on right-hand side if preferred, or with a five-point star wheel instead of lever.



No. 6
ROTARY-RATCHET
COUNTER



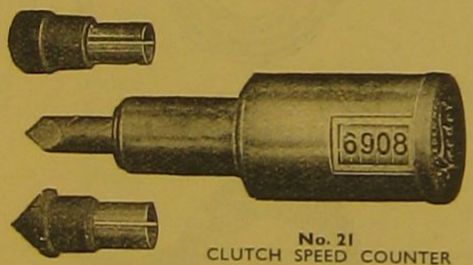
No. 7
STAR REVOLUTION
COUNTER

Nos. 5 and 6 differ only in their method of attachment. They are of the ratchet type, but without any stop motion. The lever can therefore be moved to any extent either way, but the Counters register only in the forward direction, and the number of figures registered depends on the distance the lever is moved. The throw of the lever must be regulated by outside means. For long throws a toothed segment or a gear may replace the lever.

No. 7 is intended for situations where the speed is not great nor the motion continuous. It has a star wheel with five points, and registers one for each tooth moved forward. No springs whatever are employed in the operating mechanism. Either style case can be furnished.

No.	Style of Action	Style of Case	Price, Each
4	Rotary, continuous.	To fix by Screws	8/6
5	Rotary-Ratchet, without Stops.	,, ,, a Clip	8/6
6	,, ,, ,, ,,	,, ,, Screws	8/6
7	Rotary, with 5-point Star Wheel.	,, ,, ,,	8/6

Clutch Speed Counter, No. 21



No. 21
CLUTCH SPEED COUNTER

This Speed Counter registers up to 9999, and can be used on either high or low speeds, 5000 r.p.m. being safely measured. The spindle has a ball thrust bearing.

In using the instrument, note that the spindle runs freely and only registers the revolutions when pressure comes on the end of the counter. It is not necessary to set the instrument. Place the point against end of revolving shaft, note the reading of the register, and as the second hand of the watch comes to 0 press on the counter.

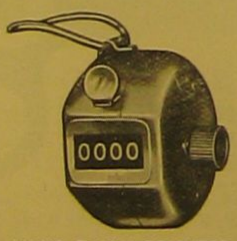
The register instantly and automatically stops the moment pressure is released. Thus the whole attention can be given to the watch, and the operator need not look at the counter while taking speed.

Price, including two rubber tips ... ... **16/9 each**

Extra Rubber Tips ... ... **1/3** ,,

Hand Tally Counter

With Quick Set Back



HAND TALLY COUNTER

This is a new instrument with four figures embodying a number of desirable features not found in any other hand tally, chief among which is the fact that it can be quickly set to zero by one turn of the knob.

The case is small, and has rounded corners.

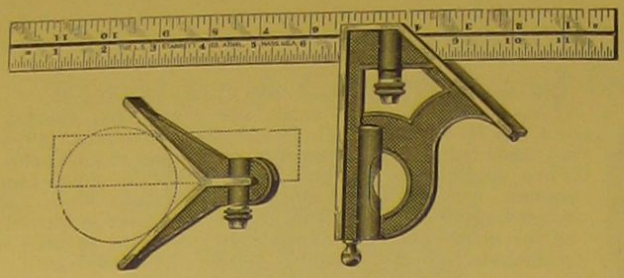
The finger ring is fixed so that it can be held in either hand when counter is in use.

This counter is useful in a variety of purposes, such as in mines, for foresters as tree counters, for storekeepers to count packages, boxes, etc., and during inventory, by telephone and electric companies as pole counters, in nurseries, and many other instances where an accurate count is required.

Price **24/-**

COMBINATION SETS AND BEVEL PROTRACTORS

Starrett Combination Squares (Made in U.S.A.)



No. 11 With Hardened Blade and Nos. 4 and 7 Graduations

No. 23 With Unhardened Blade and No. 4 Graduation only

No. 33 With Hardened Blades and Heads and Nos. 4 and 7 Graduations

These Squares are convenient as depth gauges or to square in a mortise. The auxiliary centre head forms a centring square both inside and out.

	No. 11	No. 23	No. 33
4 inch, with Centre Head ...	11/6	—	20/9
6 ,, ,, ,, ,, ...	13/–	15/–	25/–
9 ,, ,, ,, ,, ...	16/6	18/9	29/–
12 ,, ,, ,, ,, ...	19/9	22/6	33/9
18 ,, ,, ,, ,, ...	24/6	—	39/9
24 ,, ,, ,, ,, ...	29/6	—	44/9

Also made to Metric sizes.

Starrett Combination Sets (Made in U.S.A.)

Set No. 9, With Hardened Blade

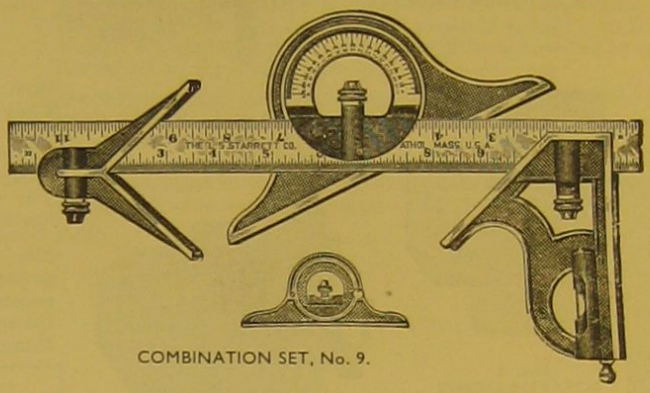
This illustration shows Combination Square, No. 11 with centre head and 7-inch Bevel Protractor Head, No. 12, all on the No. 11 Square Scale.

Each head may be instantly removed, or replaced and used interchangeably with the scale thus forming a most useful combination set of tools for mechanics' use.

Prices

9 inch, set complete	£1 12 9
12 ,, ,, ,, ...	1 16 0
18 ,, ,, ,, ...	2 1 0
24 ,, ,, ,, ...	2 5 9

Metric sizes at same prices as above.



COMBINATION SET, No. 9.

Sets Nos. 433 and 434

Consist of No. 33 Combination Square with hardened, drop-forged stock and centre head. Set No. 434 has Reversible Protractor Head No. 490 Sent with blades of No. 4 graduation unless otherwise ordered.

	Set No. 433	Set No. 434
9 inch set complete	£2 5 3	£2 11 9
12 ,, ,, ,, ...	2 10 0	2 16 9
18 ,, ,, ,, ...	2 16 0	3 2 9
24 ,, ,, ,, ...	3 1 0	3 7 6

Particulars of other Combination Sets will be sent on request.

Starrett Bevel Protractor, No. 490

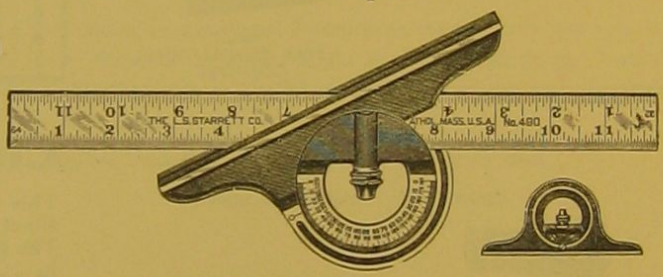
(Made in U.S.A.)

Hardened Blade, Reversible Head

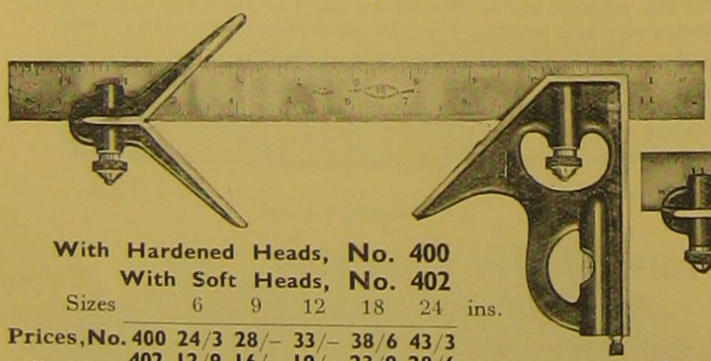
The heads also fit the blades of Nos. 11 and 23 Squares. Furnished with Nos. 4 or 7 graduations.

Prices

9 in. Set complete	£1 11 0	18 in. Set complete	£1 19 3
12 in. ,, ,,	1 13 3	24 in. ,, ,,	2 4 3
Head only, with level			2 3 0



Brown and Sharpe Combination Squares (Made in U.S.A.)

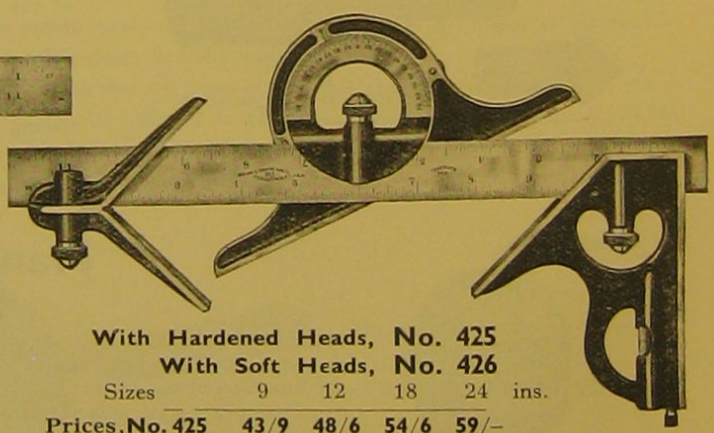


With Hardened Heads, No. 400
With Soft Heads, No. 402

Sizes	6	9	12	18	24	ins.
Prices, No. 400	24/3	28/–	33/–	38/6	43/3	
,, ,, 402	12/9	16/–	19/–	23/9	28/6	

Also made in Metric sizes

Brown and Sharpe Combination Sets (Made in U.S.A.)



With Hardened Heads, No. 425
With Soft Heads, No. 426

Sizes	9	12	18	24	ins.
Prices, No. 425	43/9	48/6	54/6	59/–	
,, ,, 426	31/6	35/–	39/6	44/–	

Also Made in Metric sizes.

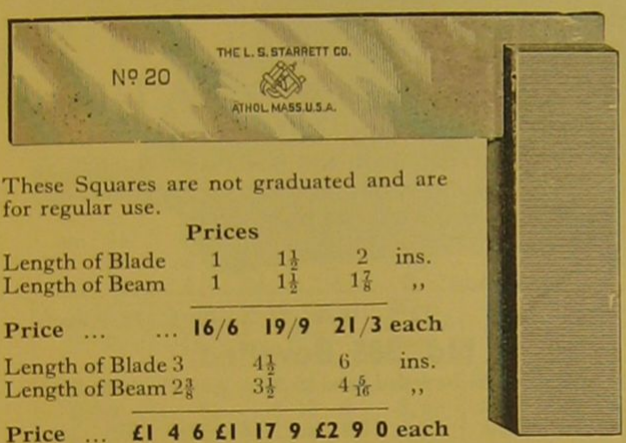
Graduations of Blades of above Combination Sets, Etc.

Graduation	No. 1	No. 2	No. 4	No. 7
1st corner	10, 20, 50, 100	8	8	16
2nd ,, ...	12, 24, 48	10, 20, 50, 100	16	32
3rd ,, ...	14, 28	12, 24, 48	32	64
4th ,, ...	16, 32, 64	16 32, 64	64	100

STEEL TRY SQUARES FOR ENGINEERS

Starrett Engineers Steel Squares (Made in U.S.A.)

Hardened Solid Steel Square No. 20



Sectional View of Blade.

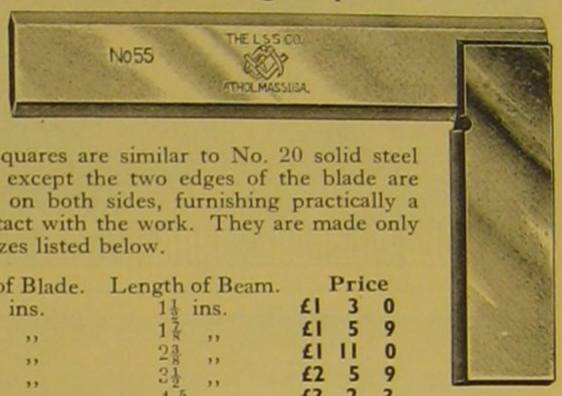
These Squares are not graduated and are for regular use.

Prices				
Length of Blade	1	1½	2	ins.
Length of Beam	1	1½	1⅞	,,
Price	**16/6**	**19/9**	**21/3**	**each**
Length of Blade	3	4½	6	ins.
Length of Beam	2⅜	3½	4 5/16	,,
Price ...	**£1 4 6**	**£1 17 9**	**£2 9 0**	**each**

Length of Blade	9	12	*15	*18	*24	ins.
Length of Beam	5 9/16	7	8⅝	10½	12 5/16	,,
Price ...	**£3 13 6**	**£4 18 0**	**£8 3 6**	**£10 7 0**	**£14 15 0**	**each**
Wood Case ...	**16/–**	**18/6**	**£1 4 6**	**£1 7 0**	**£1 14 6**	**extra**

*Have a stock support.

Hardened Bevel Edge Squares, No. 55



These Squares are similar to No. 20 solid steel squares, except the two edges of the blade are bevelled on both sides, furnishing practically a line contact with the work. They are made only in the sizes listed below.

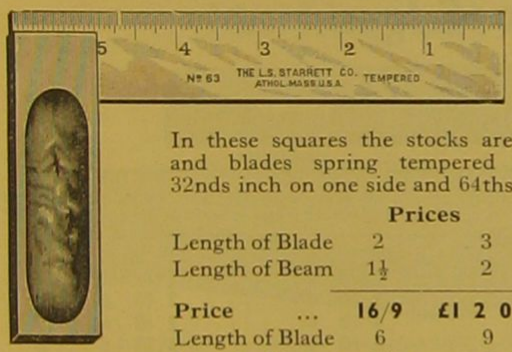
Length of Blade.	Length of Beam.	Price
1½ ins.	1½ ins.	£1 3 0
2 ,,	1⅞ ,,	£1 5 9
3 ,,	2⅜ ,,	£1 11 0
4½ ,,	3½ ,,	£2 5 9
6 ,,	4 5/16 ,,	£3 2 3

"Reliable" Try Squares, No. 60

The blade is held firmly by a patent bolt and nut, and by this means the tool can be readily taken apart. When worn, the blade and stock can be reground or lapped, and put together again as good as new.

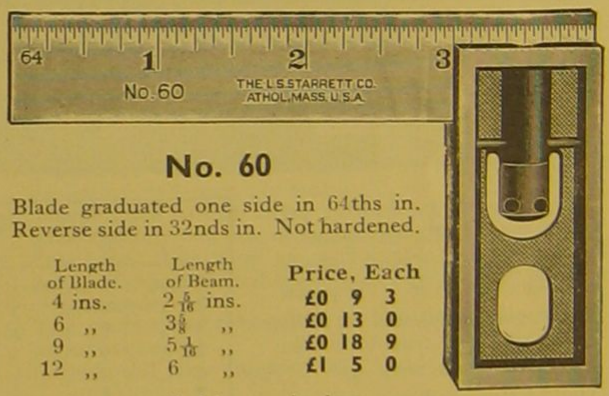
Hardened Steel Squares, No. 63

Graduated



In these squares the stocks are case-hardened, and blades spring tempered and graduated 32nds inch on one side and 64ths on the other.

Prices				
Length of Blade	2	3	4	ins.
Length of Beam	1½	2	2¾	,,
Price ...	**16/9**	**£1 2 0**	**£1 12 0**	**each**
Length of Blade	6	9	12	ins.
Length of Beam	3¾	5	6½	,,
Price ...	**£2 2 0**	**£3 7 0**	**£4 1 0**	**each**



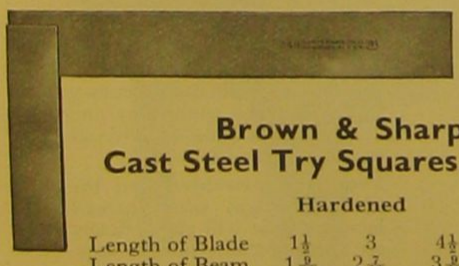
No. 60

Blade graduated one side in 64ths in. Reverse side in 32nds in. Not hardened.

Length of Blade.	Length of Beam.	Price, Each
4 ins.	2 5/16 ins.	£0 9 3
6 ,,	3⅝ ,,	£0 13 0
9 ,,	5 1/16 ,,	£0 18 9
12 ,,	6 ,,	£1 5 0

Also supplied in metric sizes.

Prices as above.

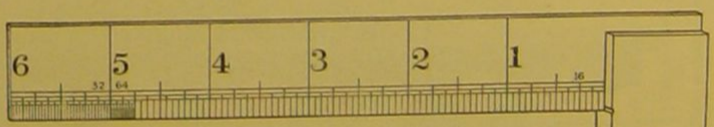


Brown & Sharpe Cast Steel Try Squares, No. 540

Made in U.S.A.

Hardened

Length of Blade	1½	3	4½	6	ins.
Length of Beam	1 1/16	2 7/16	3 9/16	4⅜	,,
Price	**19/–**	**23/9**	**36/3**	**47/6**	**each**
Length of Blade	9	12	15	18	ins.
Length of Beam	5⅝	7⅛	8 3/16	10¼	,,
Price	**71/3**	**95/–**	**158/–**	**200/–**	**each**



Rabone Engineers' Steel Squares Nos. 1482 and 1484 (British Made)

Solid steel stocks, with Hardened and Tempered Blades, Precision Ground.

No. 1482 is divided one side into 16ths, 32nds, and 64ths.

Length	2	3	4	5	6	8	10	12	ins.
Total Length Blade ...	2⅜	3¾	4¼	5¾	7	9¼	11⅛	13⅞	,,
Length of Stock ...	1¼	2¼	3	3½	4	5	6	7	,,
No. 1482, Graduated	**3/6**	**3/9**	**4/–**	**4/6**	**5/3**	**7/–**	**9/–**	**10/–**	**each**
No. 1484, Plain ...	**2/9**	**3/–**	**3/3**	**3/6**	**4/3**	**6/–**	**8/–**	**9/–**	**,,**

STRAIGHT EDGES

Starrett Steel Straight Edges (Made in U.S.A.)

No. 380 Plain

Not graduated. Made in pairs when two are wanted of exactly the same width. The prices given are for **single** straight edges.

Length ...	12	18	24	36	48	60	72	ins.
Width ...	1	1¼	1½	2	2½	3	3	,,
Thickness	3/16	3/16	3/16	¼	¼	¼	¼	,,
Prices ...	**8/9**	**14/-**	**19/3**	**35/-**	**56/-**	**84/-**	**112/-**	**each**

No. 383

Graduated, Not Bevelled

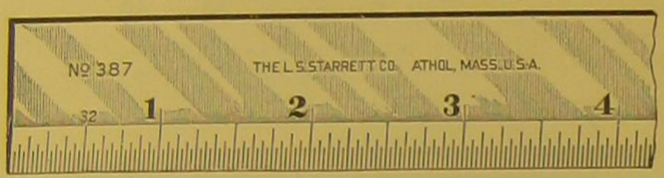
Graduated on one side only, one edge in 16ths, the other in 8th inch.

Length	12	18	24	36	48	ins.
Approx. Width ...	1	1¼	1½	2	2½	,,
,, Thickness	3/16	3/16	3/16	¼	¼	,,
Prices	**13/-**	**19/9**	**26/3**	**47/3**	**78/9**	**each**

No. 385 Bevelled

One edge only is bevelled, and this to 1/16 inch thick from ½ to ⅝ inch back.

Length ...	12	18	24	36	48	60	72	ins.
Width ...	1	1¼	1½	2	2½	3	3	,,
Thickness	3/16	3/16	3/16	¼	¼	¼	¼	,,
Prices ...	**11/9**	**19/-**	**26/3**	**42/-**	**70/-**	**105/-**	**140/-**	**each**



Graduated No. 387 Bevelled

Same widths and thicknesses as No. 385. Graduated on bevelled edge only in 32nds of an inch.

Sizes	12	18	24	36	48	ins.
Prices	**15/9**	**24/3**	**33/-**	**55/3**	**92/-**	**each**

Style "A" Steel Straight Edges (British Made)

These Straight Edges are made from high quality steel and are machined all over. They can be supplied with one or both edges surfaced true to within 1/5000th of an inch.

Hand-holes as shown are provided in sizes over 6 feet long.

Size	Approx. Weight Lbs.	Price Surfaced on both Edges	Price Surfaced on one Edge
2 feet × 4 inches × 1/2 inch	10	£1 12 0	£1 4 6
3 ,, × 4 ,, × 1/2 ,,	15	2 8 6	1 14 6
4 ,, × 4 ,, × 1/2 ,,	20	3 10 6	2 10 6
5 ,, × 4 ,, × 1/2 ,,	25	4 10 0	2 18 6
6 ,, × 4 ,, × 1/2 ,,	30	5 10 0	3 15 6
7 ,, × 6 ,, × 1/2 ,,	70	7 15 0	4 19 6
8 ,, × 6 ,, × 1/2 ,,	80	8 13 6	6 10 0

Packing Cases are charged for, but credited in full when returned.

Style "A" Cast-Iron Straight Edges (British Made)

These Straight Edges are made of hard close-grained iron, accurately hand-scraped.

They are ribbed and designed in the best manner for them to retain their accuracy under varying conditions and are as light as possible without sacrificing rigidity.

Feet are provided and the Straight Edges when turned face upwards will stand firmly on these without further support, which will be found extremely convenient in use.

Sizes and Prices

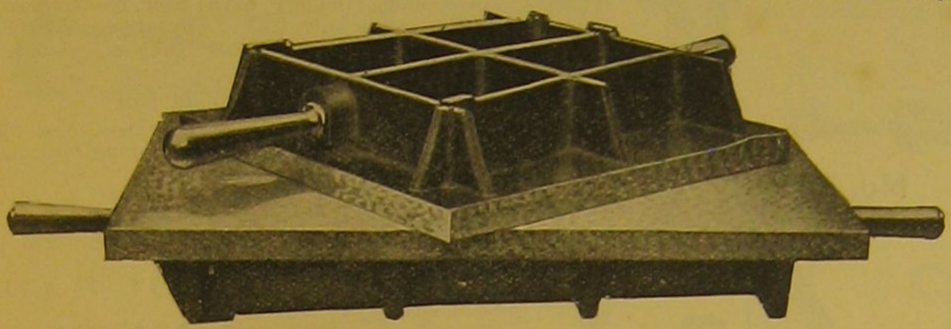
Sizes ...	12×1¼	24×1¾	36×2½	48×2½	60×2½	72×3	96×3½	120×3½	144×4	ins.
Prices	**£1 12 6**	**£2 5 6**	**£3 10 0**	**£4 10 0**	**£6 10 0**	**£8 10 0**	**£12 0 0**	**£20 12 6**	**£23 6 6**	**each**

These prices include strong wood cover.

SURFACE PLATES & MARKING-OFF TABLES

Style "A" Surface Plates (British Made)

Hand Scraped. **Accurate to 1/5000th (·0002) inch per foot**



The sides of these surface plates are planed square and polished, and all sizes are fitted with turned and polished steel handles, unless otherwise ordered.

Size Inches	Approx. Weight Lbs.	Price Each	Extra for Cover Each	Size Inches	Approx. Weight Lbs.	Price Each	Extra for Cover Each	Size Inches	Approx. Weight Lbs.	Price Each	Extra for Cover Each
4×4	4	£0 16 9	2/6	12×8	28	£2 10 0	6/6	18×18	116	£6 3 6	11/-
6×4	5½	0 18 9	3/6	12×9	35	2 13 6	7/-	24×12	112	6 3 6	12/-
6×6	10	1 2 9	4/-	12×10	41	2 18 9	7/6	24×18	154	9 6 9	13/-
8×6	15	1 6 9	4/6	12×12	48	3 3 6	8/-	24×24	220	10 13 6	18/-
8×8	18	1 12 0	5/-	14×10	45	3 6 9	8/-	30×16	186	10 6 9	16/-
9×6	16	1 10 9	5/-	16×10	50	3 17 6	8/6	30×24	252	12 13 6	20/-
9×9	25	2 0 0	6/-	16×16	96	5 0 0	9/-	36×24	335	16 0 0	24/-
10×4	12	1 4 9	4/6	18×9	60	4 0 0	9/-	36×36	504	24 0 0	30/-
10×8	25	2 1 6	6/-	18×12	74	4 19 6	9/6	48×24	470	23 13 6	30/-
10×10	29	2 10 0	6/6	18×15	90	5 10 0	10/6				

Churchill-Redman Marking-out and Inspection Tables (British Made)

Accurate to ·001 inch per foot on Planed Surfaces

SHOWING THE BENCH TYPE MARKING-OUT TABLE

The surface and long edges of these Churchill-Redman Tables are accurately machined to a margin of error not exceeding ·001 inch per foot.

The Tables are strongly ribbed on the underside to give rigidity and are made in two styles for bench use or floor type. The latter are well supported on heavy standards. Tables 8 ft. and longer are provided with three pairs of Standards.

The surfaces of tables can be lined in 6-inch squares at extra cost.

Height—All sizes—approx. 31½ ins.

SHOWING MARKING-OUT AND INSPECTION TABLE ON STANDARDS

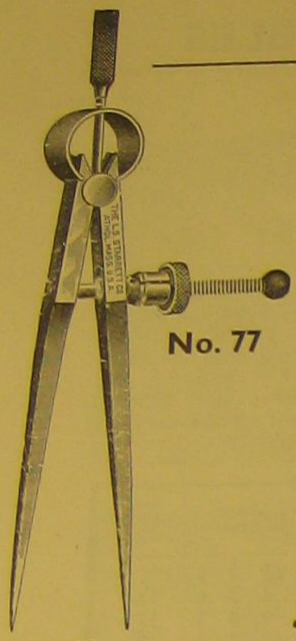
Bench Type

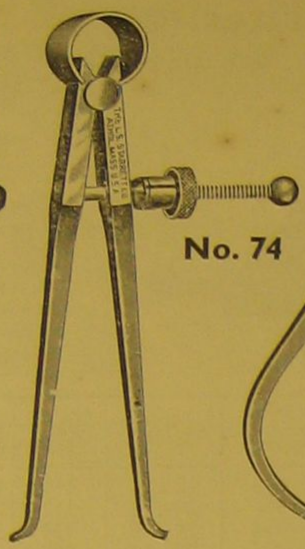
Size Ins.	Weight Lbs.	Price Each
8×8	14	£1 2 6
8×12	24	1 8 6
12×12	39	1 17 6
12×18	78	2 13 9
18×18	112	3 15 0
18×24	155	4 10 0
24×24	240	6 0 0
36×24	—	9 0 0

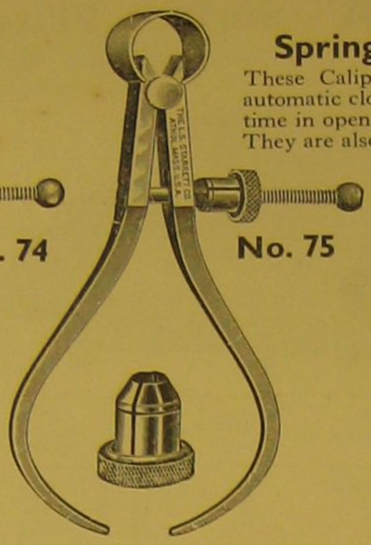
Floor Type

Size Feet	Weight Lbs.	Price Each
4×2	672	£12 3 9
4×3	840	15 18 9
4×4	1148	19 13 9
5×3	1176	18 5 9
6×3	1232	21 17 6
6×4	1624	27 16 6
8×3	1680	32 10 0
8×4	1932	40 0 0
10×4	2520	48 10 0

CALIPERS AND DIVIDERS







Starrett "Fay Patent" Spring Calipers and Dividers (Made in U.S.A.)

These Calipers and Dividers have new quick-adjusting, automatic closing spring nut. Its use will save much valuable time in opening and closing spring-bow calipers and dividers. They are also made with a solid nut.

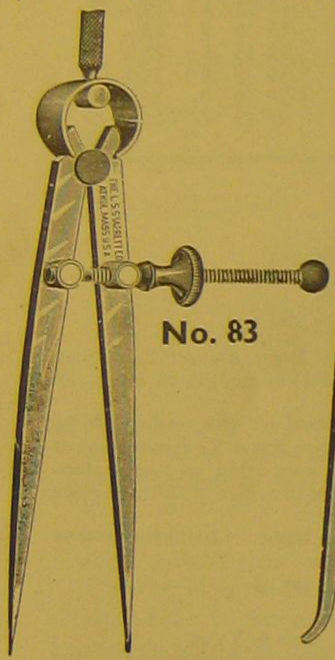
Spring Nut

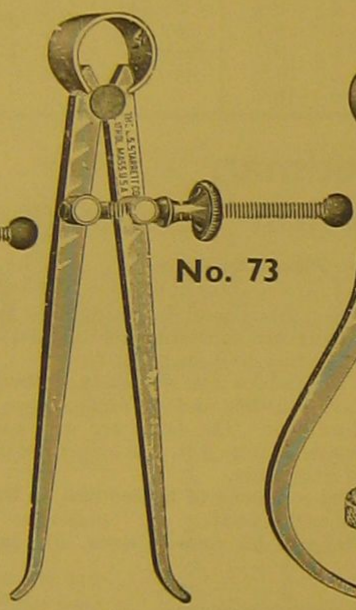
The Fay Calipers and Dividers, Nos. 74 to 77 all sizes, are sent **with Spring Nut**, unless otherwise ordered.

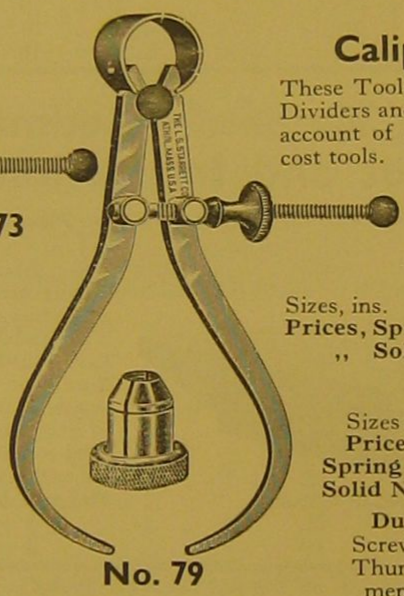
Sizes, ins. ...	2½	3	4	5	6	8
Calipers, Nos. 74 & 75 Spring Nut	7/6	7/6	8/–	8/–	9/6	11/–
Calipers, Nos. 74 & 75 Solid Nut	6/3	6/3	7/–	7/–	8/9	10/3
Dividers, No. 77 Spring Nut ...	7/6	7/6	9/–	9/–	11/–	12/6
Dividers, No. 77 Solid Nut ...	6/3	6/3	8/–	8/–	10/3	11/9

Duplicate Parts

Screw and Ball	1/–	Leg (Left) with screw attachment ...	3/3
Thumb Attachment... ...	1/–	Spring	1/6
Solid Nut ...	–/9	Jam Washer ...	–/9
Spring Nut ...	1/6	Fulcrum Stud	–/9
Leg (Right) ...	2/–		







Starrett "Yankee" Calipers and Dividers (Made in U.S.A.)

These Tools are not so heavy as the Fay Calipers and Dividers and are cheaper. They are much liked, and on account of price are preferred by many to the higher cost tools.

Sent with solid nut, unless otherwise ordered.

Prices are the same for

Nos. 73 and 79

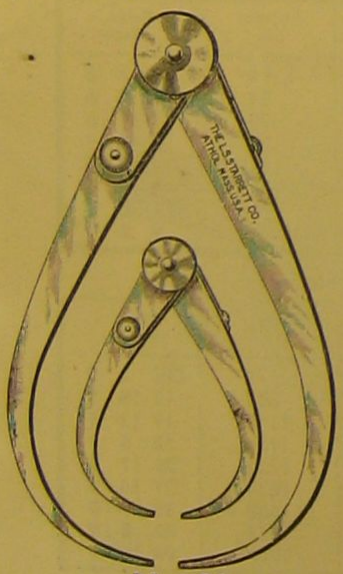
Sizes, ins.	2½	3	4	5	6	8	10	12
Prices, Spring Nut	5/3	5/6	5/9	6/–	6/3	7/6	9/6	10/6
,, Solid Nut	4/3	4/6	4/9	5/3	5/6	6/3	8/9	9/6

No. 83

Sizes: ...	2½	3	4	5	6	8	10	12 ins.
Prices:								
Spring Nut	5/3	5/6	5/9	6/–	6/3	8/–	9/6	10/6
Solid Nut	4/3	4/6	4/9	5/3	5/6	7/–	8/9	9/6

Duplicate Parts

Screw and Ball	1/–	Leg (Left) with screw attachment ...	2/9
Thumb Attachment	1/–	Spring	1/6
Solid Nut ...	–/9	Jam Washer ...	–/9
Spring Nut ...	1/6	Fulcrum Stud	–/9
Leg (Right) ...	1/6	Stud	–/9



Starrett Lock-Joint Transfer Calipers Nos. 36 and 37 (Made in U.S.A.)

These instruments are for ordinary calipering, but in addition may be used inside of chambered cavities, over flanges, etc., removed and replaced without losing the size calipered. This is done by loosening the nut binding one arm to the auxiliary leaf and swinging it out or in (while the joint is locked) to clear the obstruction, then moving it back against a stop where it will show the exact size measured.

The sizes given refer to length of Calipers, but the capacity of No. 36 is about 20 per cent, and of No. 37 about 50 per cent, greater than the length.

Sizes	4	5	6	8	10	12	14	16	18	20	24	ins.
Prices	8/3	9/3	10/–	11/6	13/3	14/9	16/6	18/–	19/9	23/–	30/–	

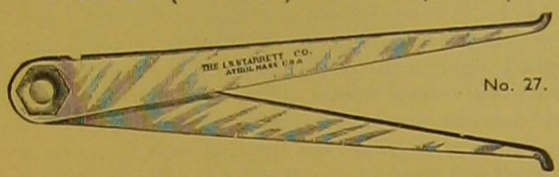
Starrett Hermaphrodite Calipers, No. 42 (Made in U.S.A.)

With adjustable point, lock-joint, and sensitive adjustment.

	Prices			
Sizes ...	4	6	8	10 ins.
Price	**6/3**	**7/6**	**8/9**	**10/3**

Starrett Firm-Joint Calipers (Made in U.S.A.)

Nos. 26 (Outside) and 27 (Inside)



No. 27.

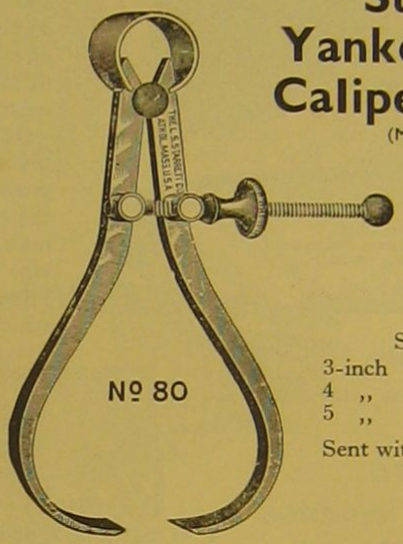
In these Calipers the joint is so made as to be drawn together by means of a screw. The main stud is squared and fitted to one leg, thus preventing the stud from turning when loosening and tightening, and ensuring a smooth and uniform friction of more or less tension to suit the user. Sizes given refer to **length** of Calipers.
Their **capacity** is about one-third greater than the size given.

Sizes	3	4	5	6	8	10	12	ins.
Prices ...	**2/9**	**3/3**	**3/9**	**4/3**	**5/3**	**5/9**	**6/3**	
Sizes	14	16	18	20	24	30	36	ins.
Prices ...	**9/6**	**11/–**	**13/6**	**15/9**	**19/–**	**31/6**	**37/9**	

Inside Calipers No. 27 are not made larger than 24 inches.

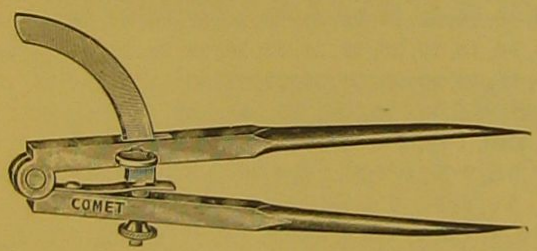
Starrett Yankee Thread Calipers, No. 80

(Made in U.S.A.)



Prices	Solid Nut.	Spring Nut.
3-inch	**5/6**	**6/3**
4 ,,	**5/9**	**6/9**
5 ,,	**6/–**	**7/–**

Sent with solid nut unless otherwise ordered.



COMET Wing Dividers (Foreign)

These are good quality tools, made of steel, finely polished. The upper parts of the legs are square, the lower having a long taper.

Size	6	7	8 ins.
Price	**24/–**	**27/–**	**30/– per doz.**

Starrett Thickness Gauge, No. 71 (Made in U.S.A.)

This Thickness or Feeler Gauge is designed particularly for the motor trade and contains the following leaves:—·0015, ·002, ·003, ·004, ·006 and ·015. This combination of leaves permits the adjustment of tappets on motors and the gauging of slots from ·0015 to ·031.
The leaves fold neatly into and are protected by a metal case, and any leaf may be easily replaced by removing the screw stud acting as a pivot.
At the opposite end of the case is an eyelet whereby this gauge may be carried on a ring or hung from a hook.

Price 5/3

Starrett Thickness Gauge No. 72 (Made in U.S.A.)

This Gauge has 22 leaves, varying in thickness by thousandths running from ·004 to ·025. The thickness of each leaf is designated by the number upon it. Each leaf may be used singly or in combination with others, and any thickness in thousandths within their limits may be quickly obtained. Length when closed 2¾ ins.

Price ... 14/6 each.

No. 72 M—Metric, has 12 leaves from ·04 m/m. to 3 m/m. by 10oths of m/m.

Price ... 14/6 each.

THIS ILLUSTRATION SHOWS **Nos. 40 4, 5, 6, AND 156** THREAD GAUGES

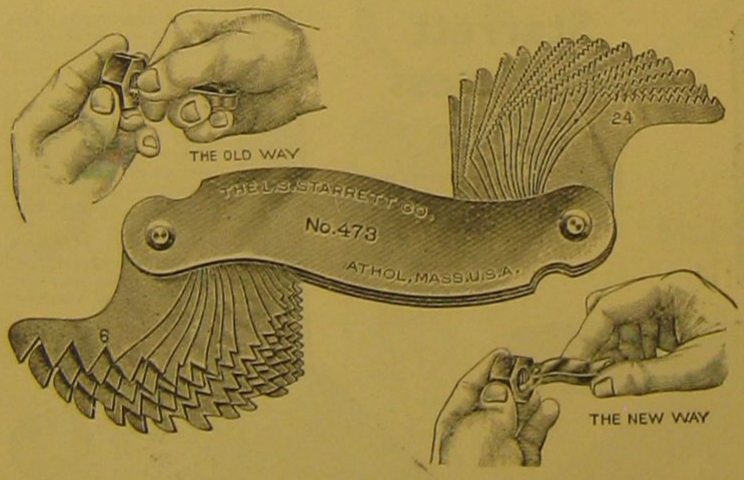
DESCRIBES **Nos. 158 AND 159** THREAD GAUGES

Starrett Improved Screw Pitch Gauge No. 40

The teeth of these Screw Pitch Gauges are sharp and clean cut, and the shape of the blades enables them to be used equally well inside or outside of a screw or bolt. A great improvement consists of stamping on each leaf decimals showing the double depth of thread on said leaf, and this of course equals the depths of threads on the two sides of a tap having the same pitch, and helps the workman to determine the size of a drill needed to drill the hole the right size to leave a full V thread for a tap having the same pitch. To do this, caliper with a micrometer over the threads of the tap, and from its size in thousandths shown deduct the decimals given on the pitch gauge leaf agreeing with the pitch of the tap. The result will show in thousandths the size of drill needed for a full thread. An allowance is to be made for the extent to which it is desired the thread should be flattened. A further improvement has recently been made in reducing the width of the leaves having the finer pitches, so that they will enter small nuts.

Nos. 4, 5, 6, and 40 are for V Thread and No. 7 for Whitworth Thread.

Nos.	Prices.	No. of Pitches.	
4	7/9	24	4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30
5	7/9	26 ...	32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82
6	9/–	30	4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42
7	7/9	26	4, 4½, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 40, 48, 60
40	6/6	22	9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40
156	6/6	28 Metric,	·25, ·30, ·35, ·40, ·45, ·50, ·55, ·60, ·65, ·70, ·75, ·80, ·85, ·90, 1·00, 1·10, 1·20, 1·25, 1·30, 1·40, 1·50, 1·60, 1·70, 1·75, 1·80, 1·90, 2·00, 2·50
158	6/6	17 with Centre Gauge.	International System, 0·5, 0·75, 1, 1·25, 1·5, 1·75, 2, 2·5, 3, 3·5, 4, 4·5, 5, 5·5, 6, 6·5, 7 m/m.
159	9/–	22	French System, Metric, 1, 1·5, 2, 2·5, 3, 3·5, 4, 4·5, 5, 5·5, 6, 6·5, 7, 7·5, 8, 8·5, 9, 9·5, 10, 10·5, 11, 11·5 m/m.



Starrett Positive Stop Gauge, No. 473

30 Pitches, 6 to 60, V Thread.

This Gauge has a positive stop which holds the blade in a fixed and convenient position for use. It has 30 pitches from 6 to 60 inclusive, as follows: 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22 in one end of the case; 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 48, 50, 56, 60, in the other.

The number of pitch is stamped on the right side of each blade.

Price ... ... 9/3 each

No. 476

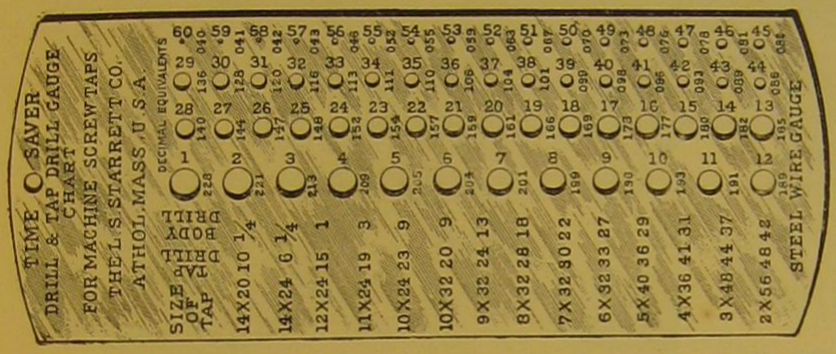
30 Pitches, 3½ to 60, Whitworth Thread.

Similar to No. 473, but contains 30 leaves with following pitches: 3½, 4, 4½, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, one end; and 19, 20, 22, 24, 25, 26, 28, 30, 32, 36, 40, 44, 48, 50, 60, at other end.

Price ... ... 9/3 each

DRILL AND WIRE GAUGES, ETC.

Starrett Drill, Tap, and Steel Wire Gauge, No. 185



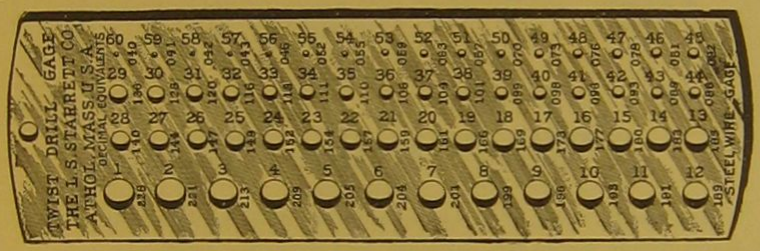
By the use of this Gauge one is enabled to select at once the right sized drill to suit machine screw tap most commonly used, leaving just stock enough for the tap to cut as near a full thread as is practicable for one tap without breaking it.

Explaining the chart, the first row of figures, or an example, read thus, 14×20 10 $\frac{1}{4}$. The number 14 (in the first row of figures) means the number or size of tap; 20 the pitch or size of thread; 10 the size of drill to use which will leave the right stock for proper thread; and $\frac{1}{4}$, size of drill to use to let this tap or screw through outside of the thread.

The figures—1, &c., up to 60—designate the number of drill (size agreeing with the holes). Other figures, 228, 221, &c., designate the size of hole in thousandths of an inch.

Price **13/6**

Starrett Drill and Steel Wire Gauge, No. 186



This Gauge gives the number of drill to fit each hole, and the size of the hole in thousandths of an inch.

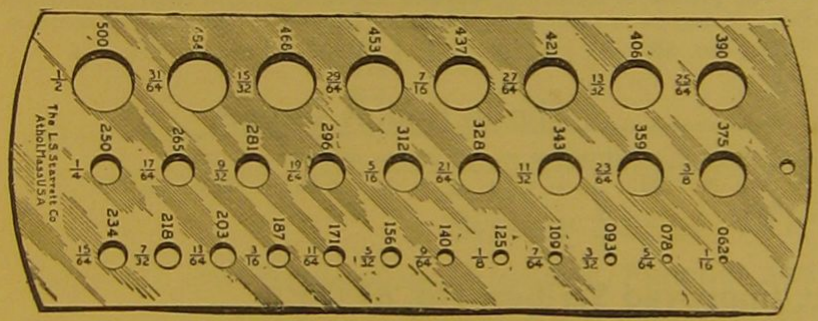
Price **11/3**

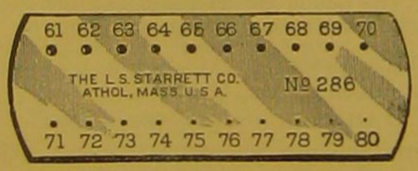
Starrett Jobbers' Drill Gauge No. 187

For Gauging Twist Drills.

This Gauge shows sizes from $\frac{1}{16}$ to $\frac{1}{2}$ inch, varying by 64ths. Each size is designated by both common and decimal fractions. The gauge is hardened and tempered, and the holes standard.

Price **15/6**



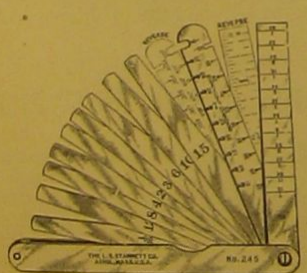


Starrett Twist Drill and Steel Wire Gauge No. 286

This Gauge gives the number of drill to fit each hole. It can also be used in measuring fine drill rods. Each gauge is tested after hardening. Size of gauge, 2 inches long, $\frac{3}{4}$ inch wide, and $\frac{1}{16}$ inch thick. It takes in sizes from 61 to 80, inclusive.

Price **13/6**

Starrett Engineers' Taper, Wire, and Thickness Gauge No. 245



This tool is specially designed for the use of marine engineers, machinists, and others desiring a set of gauges in compact form.

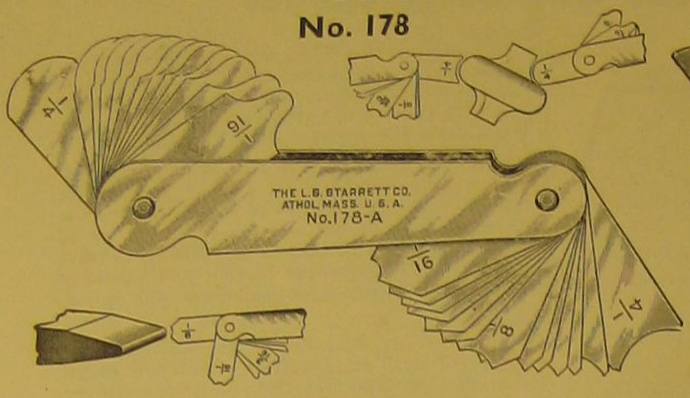
The taper gauge shows the thickness in 64ths to $\frac{3}{16}$ths of an inch on one side, and the reverse side is graduated as a rule 3 inches of its length, reading in $\frac{1}{8}$ths and $\frac{1}{16}$ths of an inch.

The wire gauge, English Standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one $\frac{1}{16}$, the other $\frac{1}{8}$ of an inch, and on the reverse side shows the decimal equivalents expressed in thousandths. This gauge has also nine thickness or feeler gauge leaves, approximately 4 inches long, of the following thicknesses: ·002, ·003, ·004, ·006, ·008, ·010, ·012, ·015, and $\frac{1}{16}$th of an inch all folded within the case, which is $4\frac{3}{4}$ inches long, convenient to handle or to carry in pocket.

Price **£1 11 3**

Starrett Fillet or Radius Gauges (Made in U.S.A.)

No. 178



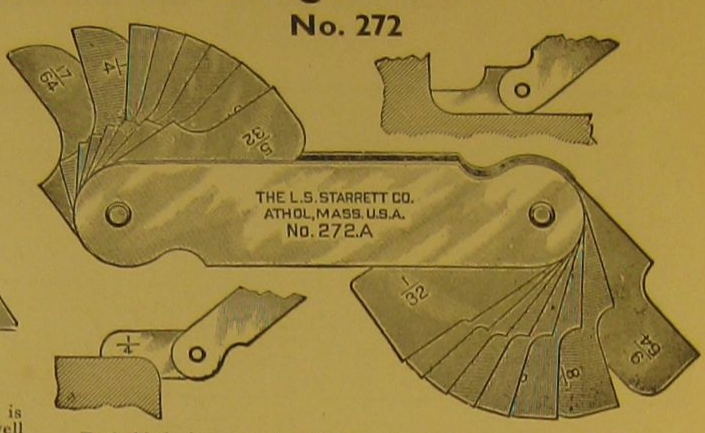
This Gauge may also be described as a concave and convex gauge, and is especially adapted for use in laying out special forming tools, dies, etc., as well as for measuring fillets.

Size **A** has 30 leaves stamped to indicate radii by 64ths, from $\frac{1}{32}$ to $\frac{1}{4}$ inch (one-half diametric size). Diameters are from $\frac{1}{16}$ to $\frac{1}{2}$ inch, varying by 32nds.

Size **B** is made with 32 leaves stamped to indicate radii by 64ths, from $\frac{17}{64}$ to $\frac{1}{2}$ inch. Diameters are from $\frac{17}{32}$ to 1 inch, varying by 32nds.

No. 178 A ... ... **8/6 each**
,, 178 B ... ... **11/3 ,,**

No. 272



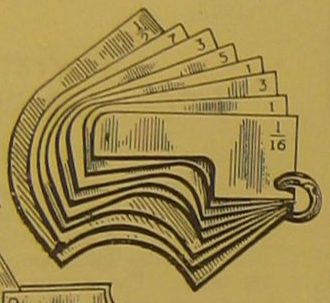
Each blade is stamped with the radius in 64ths, the external being on one side and the internal on the other. It can be used in any position or at any angle, the formation allowing it to be used up to a shoulder, and for duplicating sample pieces.

Size **A** has 16 leaves, with radii from $\frac{1}{32}$ to $\frac{17}{64}$ in., inclusive, by 64ths.
Size **B** has 16 leaves, with radii from $\frac{9}{32}$ to $\frac{1}{2}$ in., inclusive, by 64ths.

No. 272 A ... ... **7/– each**
No. 272 B ... ... **10/– ,,**
Can also be supplied in metric sizes.

"Ring" Radius Gauges

(British Made)



No. 5R

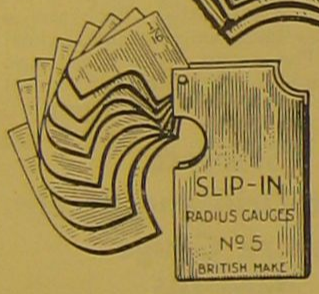
These gauges being of tempered steel are of great durability.

Each gauge gives the internal and external radii.

The profile is continued beyond the ends of both radii, giving edges at 90 degrees to each other, which is a great aid to quickness and accuracy.

Set No. 5R. $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ inch. Price per Set **2/6**

Slip-in Radius Gauges

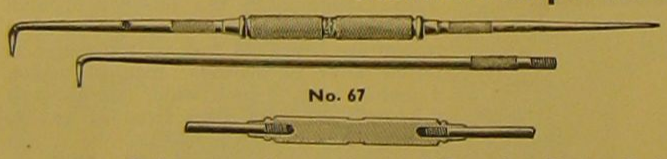


No. 5S

Similar in construction to the gauges described above.

Set. No. 5S. $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{2}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ inch. Price per Set. **3/6**

Starrett Improved Scriber, No. 67 (Made in U.S.A.)



No. 67

The points are tempered and the knurled stock is easily held without cramping in the fingers.

The long bent point is a valuable auxiliary for reaching through holes, etc. Length, with short, bent point, 9 inches; with long point, 12 inches.

All parts are interchangeable.

Price, Complete as shown, **3/3 each** **Extra Points,** Straight, **9d. each.** Short bent, **9d. each.**
Price, Without long point, **2/6 each.** Long bent, **1/– each.**

Starrett Adjustable Sleeve Scriber, No. 68 (Made in U.S.A.)

The knurled sleeve has a hole clear through and a clamping device at one end, adapting it for slipping on or off different tools, securely holding them near to or away from the working point. This Scriber is made in two lengths, 8 inches and 12 inches.

Prices, Either size, without knife point, **3/3.** Knife point extra, **1/–** Extra Scriber point, **1/–**

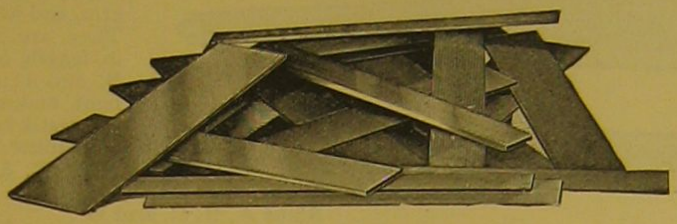
Starrett Pocket Scribers, No. 70 (Made in U.S.A.)

The Scriber is made from the best quality of steel, nicely tempered, and is held by a knurled chuck. **The Scriber is reversible,** telescoping into the stock, and is held by a slight turn of the chuck.

Prices: No. 70A. Handle $\frac{1}{4}$ in. diam., blade $2\frac{3}{8}$ ins. long, **2/– each**
No. 70B. Handle $\frac{3}{8}$ in. diam., blade $2\frac{7}{8}$ ins. long, **2/9 each**

GROUND FLAT STOCK AND SILVER STEEL

Ground Flat Stock (British Made)



This Stock is of service not only in tool work for making flat gauges, test tools, "jig work," etc., but in all work requiring steel of a definite thickness.

The steel is of first quality, annealed, and ground to within a limit of .001 inch of the given thickness.

Thickness Ins.	Width Ins.	Length Ins.	Price per Piece	Thickness Ins.	Width Ins.	Length Ins.	Price per Piece	Thickness Ins.	Width Ins.	Length Ins.	Price per Piece
	1		2/10		1		3/4		1		4/3
	1½		3/6		1½		3/10		1½		4/6
	2		4/-		2		4/-		2		4/10
1-32	2½	18	4/8	3-32	2½	18	4/6	3-16	2½	18	5/7
	3		5/4		3		5/-		3		6/3
	3½		6/-		3½		5/6		3½		7/-
	4		6/9		4		6/-		4		7/9
	6		10/6		6		9/-		6		11/3
	1		2/9		1		3/10		1		4/6
	1½		3/5		1½		4/-		1½		4/10
	2		3/9		2		4/3		2		5/3
3-64	2½	18	4/3	1-8	2½	18	5/-	7-32	2½	18	6/-
	3		4/10		3		5/4		3		6/9
	3½		5/6		3½		6/-		3½		7/6
	4		6/3		4		6/6		4		8/3
	6		9/3		6		9/9		6		12/6
	1		2/8		1		4/-		1		4/9
	1½		3/4		1½		4/3		1½		5/3
	2		3/6		2		4/6		2		5/9
1-16	2½	18	4/-	5-32	2½	18	5/3	1-4	2½	18	6/7
	3		4/6		3		5/9		3		7/4
	3½		5/-		3½		6/6		3½		8/-
	4		5/6		4		7/-		4		8/9
	6		8/3		6		10/6		6		13/6
								3-8	4	18	14/-

Silver Steel Wire (British Made)

For Drills, Taps, Reamers, Punches and other Small Tools

Guaranteed round and exact to size.

Stocked in Straight Lengths of 13 inches

Longer Lengths can be supplied. Prices on application

Gauge No.	Diameter in Decimals of Inch	Price per Lb.	Gauge No.	Diameter in Decimals of Inch	Price per Lb.
1 to 15	·227 to ·178	2/6	58 to 60	·041 to ·039	7/-
16 ,, 30	·175 ,, ·127	2/9	61 and 62	·038 and ·037	8/-
31 ,, 38	·120 ,, ·101	3/-	63 ,, 64	·036 ,, ·035	8/6
39 ,, 46	·099 ,, ·079	3/6	65 ,, 66	·033 ,, ·032	9/-
47 ,, 50	·077 ,, ·069	4/-	67	·031	9/6
51 ,, 54	·066 ,, ·055	4/10	68	·030	10/6
55 ,, 57	·050 ,, ·042	6/-	69 and 70	·029 and ·027	12/-

Letter Gauge Sizes

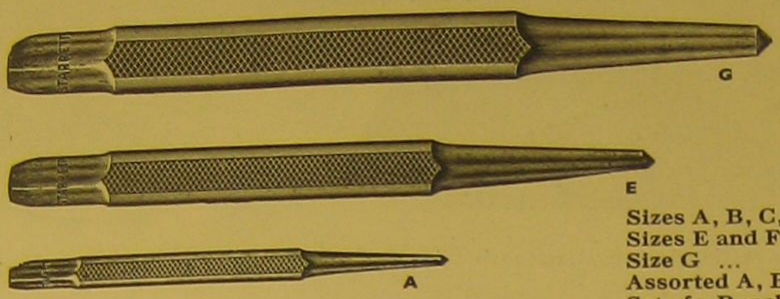
Sizes Z to A. Diameter in decimals of inch, ·413 to ·234. **Price, 2/6 per lb.**

Fractional Sizes

Sizes	1/64	1/32	1/16	3/64	3/32	7/64	1/8	5/32	3/16	1/4	inch and thicker.
Prices ...	**20/-**	**9/6**	**4/10**	**4/-**	**3/6**	**3/-**	**3/-**	**2/9**	**2/6**	**2/6**	**per lb.**

CENTRE PUNCHES & PLUMB BOBS

Starrett Centre Punches, No. 264 (Made in U.S.A.)



These Punches are square, with knurled grip, and will not roll when laid down. They are made in seven sizes ranging in length from 2⅞ to 5 inches. The A, B, and C sizes are specially adapted to light toolmakers' work. Each punch is tempered its full length.

Diameter at points—A, 1/16 in.; B, 5/64 in.; C, 3/32 in.; D, 1/8 in.; E, 5/32 in. F, 3/16 in.; G, 1/4 in.

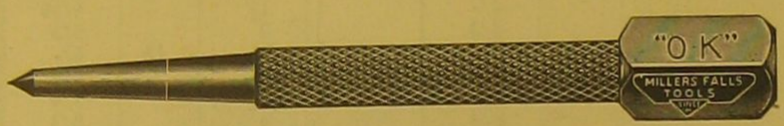
Sizes A, B, C, and D	...	**1/6 each, or 16/9**	**per doz.**
Sizes E and F	...	**2/–** ,,	**23/6** ,,
Size G	...	**2/3** ,,	**27/–** ,,
Assorted A, B, C, and D	... ...		**16/9** ,,
Set of 7 Punches	...	**13/–**	

Starrett Centre Punches, No. 117 (Made in U.S.A.)

Sizes...	...	**A**	**B**	**C**	**D**	**E**
Diameter	...	5/64	3/32	9/64	5/32	1/4 in.
Prices	...	**1/3**	**1/3**	**1/3**	**1/3**	**1/6 each**

Price, assorted, A, B, C, D, 15/– per doz.
E, 18/– per doz.
Price, assorted, A, B, C, in round wooden box, 17/– per doz.

Millers Falls Centre Punches (Made in U.S.A.)



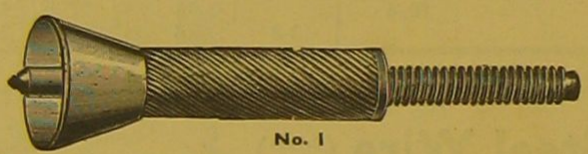
Square Head, No. 460

This punch has a large striking surface, and being square will not roll on inclined surfaces. Head, 3/8 inch square; Length, 4 inches; Body, 5/16 inch diameter.

Price ... ... 6/3 per doz.

"O.K." Nos. 141—146

Nos.	**141**	**142**	**145**	**146**
Diam. of body	5/16	3/8	1/2	1/2 in.
Length ...	4	4	4	4 ins.
Prices ...	**5/6**	**6/8**	**9/4**	**10/10 per doz.**

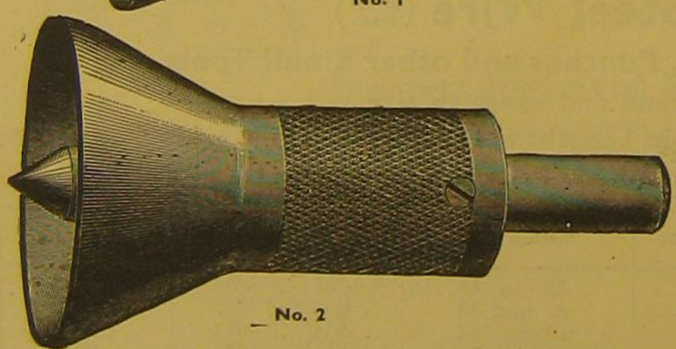


Bell Centre Punches, No. 1 (British Made)

These handy little tools enable a mechanic instantaneously to centre any round, square, oval, triangular, hexagonal, or octagonal article for the purpose of drilling or turning. They are made of gun metal, and are guaranteed.

Price, 1 inch	...	...	...	...	**2/6 each**
,, **2** ,,	...	...	...	...	**4/3** ,,

Larger sizes can be supplied. Prices on application.



No. 2

This Punch needs no explanation, as every machinist knows its usefulness, and that his kit of tools is incomplete without it. It is made of steel, finely finished, and is quite accurate.

Capacity, up to 1½ inches. Weight 5 ozs.

Price ... ... 4/– each

"Record" Brass Plumb Bobs, No. 1405 (British Made)

These Plumb Bobs are made with removable screwed tops for inserting the line, accurately turned, and have steel points.

The weights given are approximate.

Weight, oz.	1½	2½	3	4½	6	8	10	13	16
Size No.	**00**	**0**	**01**	**2**	**3**	**4**	**5**	**6**	**6½**
Price, per doz.	**12/–**	**15/–**	**18/–**	**24/–**	**30/–**	**36/–**	**42/–**	**54/–**	**66/–**

Larger sizes supplied. **Prices on application.**

Section 4

Screwing Tackle

Stocks and Dies

Dies

Taps

Tap Holders

Tap Extractors

Die Nuts

Chasers

Die Stocks

Die Heads

Screwing Machines

TABLES OF TAPPING SIZES, TAP DRILLS and other Handy Reference Tables and Data are printed on the end pages of this Catalogue

STOCKS AND DIES IN SETS

Card's "Paragon" Stocks and Dies (Made in U.S.A.)

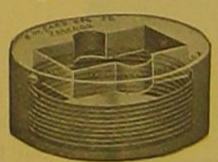
These sets of stocks and dies are strongly recommended to all engineers who require something above the ordinary, as being the finest thing in screwing tackle turned out by the S.W. Card Manufacturing Co.
The dies are square, easily removable for sharpening, are adjustable, and fit closely into the collet.
The alignment between die and guide is always perfectly maintained.

"PARAGON" ONE STOCK SET WITH TAPER TAPS ONLY

"PARAGON" TWO STOCK SET WITH TAPER, PLUG AND BOTTOMING TAPS

Cutting Sizes Inches	Collet Ins.	Stock Ins.	Tap Wrench No.	Prices Incl. Taper Taps Only — Set No.	Prices Incl. Taper Taps Only	Prices Incl. Taper, Plug and Bottoming Taps — Set No.	Prices Incl. Taper, Plug and Bottoming Taps
One Stock Sets			**Whitworth Standard Bolt Thread**				
1/4, 5/16, 3/8, 7/16, 1/2	2	16	7	502	£3 17 0	552	£4 11 9
1/4, 3/8, 1/2, 5/8, 3/4	2½	24	8	503	4 14 9	553	6 3 0
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	2½	24	8	504	5 14 6	554	7 9 0
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	3	31	7–9	505	8 15 0	555	10 10 6
1/2, 5/8, 3/4, 7/8, 1	3	31	9	506	6 2 0	556	8 4 6
Two Stock Sets							
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	2–2½	16–24	8	510	6 5 0	560	7 17 3
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	2–3	16–31	7–9	511	9 1 3	561	11 13 3
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1⅛, 1¼ ...	2–3½	16–38	8–10	513	14 5 6	563	18 10 9
One Stock Sets			**British Standard Fine Thread**				
1/4, 5/16, 3/8, 7/16, 1/2	2	16	7	502B	3 17 0	552B	4 11 9
1/4, 9/32, 5/16, 3/8, 7/16, 1/2	2	16	7	502½B	4 5 0		
Two Stock Sets							
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	2–2½	16–24	8	510B	6 5 0	560B	7 17 3
1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4	2–2½	16–24	8	510½B	8 0 6		
1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	2–3	16–31	7–9	511B	9 1 3	561B	11 13 3

Extra Parts for "Paragon" Sets



Stocks (Made in U.S.A.)

No. of Stock ...	13	14	15	16	18
Length of Stock ins.	16	24	31	38	52
Fits Collets, Nos.	13	14	15	16	18
Diam. of Collets ins.	2	2½	3	3½	4½
Price Each ...	10/5	12/6	14/7	25/-	33/4

Collets and Guides (Made in U.S.A.)

No. of Collet ...	13	14	15	16	18
Diam. of Collet ins.	2	2½	3	3½	4½
Range of Collet ,,	¼ to ½	½ to ¾	¾ to 1	⅞ to 1¼	⅝ to 1½
Price, Guide & Collet	3/4	5/5	6/11	9/5	12/6
,, Collet only ...	2/1	3/4	4/2	6/3	8/4
,, Guide only ...	1/3	2/1	2/9	3/2	4/2

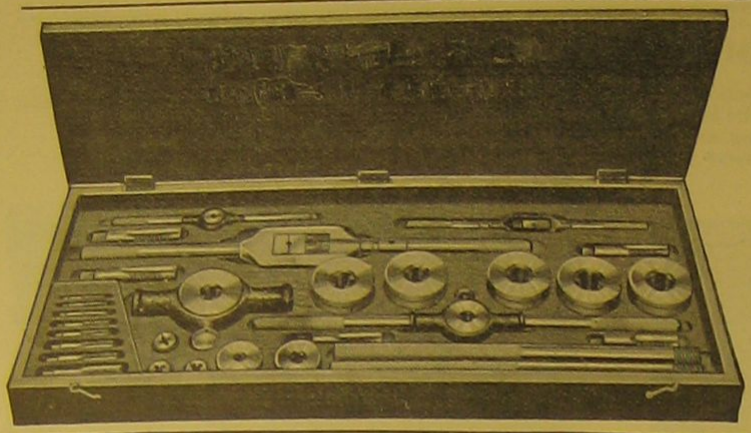
Dies for all Sizes of Collets (Made in U.S.A.)

Cutting Sizes	¼	5/16	⅜	7/16	½
Price Each ...	4/2	4/2	5/3	5/3	6/3
Cutting Sizes	9/16	⅝	¾	⅞	1
Price Each ...	6/3	7/4	8/4	11/6	11/6
Cutting Sizes	1⅛	1¼	1⅜		1½
Price Each ...	16/8	16/8	20/10		20/10

British Made Dies, Collets and Guides for "Paragon" Sets

For Stock No.	13	14	15
Dies Each	8/-	11/-	14/-
Collets ,,	8/-	10/-	12/6
Guides ,,	4/6	6/-	8/-

STOCKS AND DIES IN SETS



Card's "Reece" Stocks and Dies

(Made in Canada)

The dies in these sets whilst being easily adjusted by turning the adjusting screw either in or out, are held rigidly in place by screwing down the collet cap; they have all the advantages of a solid die.

The dies can be quickly removed for replacement or re-sharpening.

Cutting Sizes Inches	Collet Inches	Stock Inches	Tap Wrench	Prices				
				Including Taper Taps only			Including Taper, Plug and Bottoming Taps	
WHITWORTH STANDARD BOLT THREAD								
One Stock Sets				Set No.			Set No.	
¼, 5/16, ⅜, 7/16, ½	2¾	22	No. 9	**A**	£3	17 0	**10A**	£4 11 9
⅝, ¾, ⅞, 1	2¾	26	No. 11	**B½**	5	9 6	**10B½**	7 8 0
Two Stock Sets								
¼, 5/16, ⅜, 7/16, ½, ⅝, ¾	1⅝, 2¾	14, 26	No. 10	**CC**	5	14 6	**10CC**	7 9 0
¼, 5/16, ⅜, 7/16, ½, ⅝, ¾, ⅞, 1 ...	1⅝, 2¾	14, 26	No. 9 & 11	**EE**	8	15 0	**10EE**	11 13 3
BRITISH STANDARD FINE THREAD								
One Stock Sets								
¼, 5/16, ⅜, 7/16, ½, ⅝, ¾	2¾	22	No. 9	**AB**	£3	17 0	**10AB**	£4 11 9
Two Stock Sets								
¼, 5/16, ⅜, 7/16, ½, ⅝, ¾, ⅞, 1 ...	1⅝, 2¾	14, 26	Nos. 9 & 11	**EEB**	8	15 0	**10EEB**	11 13 3

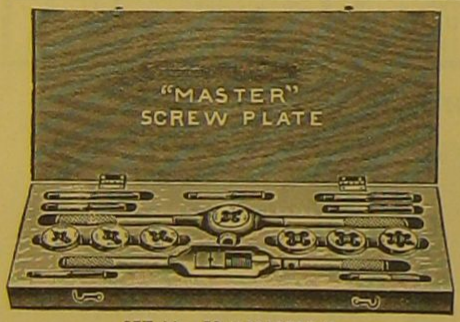
EXTRA PARTS FOR "REECE" SETS

Stocks			
No. of Stock ...	**D5**	**D8**	**D9**
Length of Stock ins.	14	22	26
Fits Collets Nos. ...	D74	R8-12	R8-13
Diam. of Collets ins.	1⅝	2¾	2¾
Price Each	**10/5**	**14/7**	**14/7**

Collets and Caps						
No. of Collet	**D74**	**R8**	**R11**	**R12**	**R13**
Diam. of Collet ... ins.	1⅝	2¾	2¾	2¾	2¾
Range of Collet ... „	¼ to 7/16	¼ to ⅜	7/16 to ½	9/16 to ¾	⅞ to 1
Price, Collet and Cap ...	—	5/5	5/5	5/5	5/5
„ Collet only ...	3/2	3/4	3/4	3/4	3/4
„ Cap only	—	2/1	2/1	2/1	2/1

DIES FOR ALL SIZES OF COLLETS

Cutting Size ... ... ins.	¼	¼	5/16	5/16	⅜	⅜	7/16	7/16	½	½	⅝	¾	⅞	1
Diam. of Collet ... ... „	1⅝	2¾	1⅝	2¾	1⅝	2¾	1⅝	2¾	2¾	2¾	2¾	2¾	2¾	2¾
Price Each	4/2	4/2	4/2	4/2	4/2	5/3	4/2	5/3	6/3	7/4	8/4	11/6	11/6	



SET No. 58 "MASTER"

Card's "Master" Stocks and Dies (Made in Canada)

With Round Adjustable Dies.

WHITWORTH THREAD

Set **No. 22** Master. Stock, 11 ins. long; 5 Dies, 1 5/16 in. diam., and 5 Taper Taps, cutting ¼, 5/16, ⅜, 7/16, ½ inch, without Tap Wrench **Price £2 10 0**

Set **No. 58** Master. Stock, 14 ins. long, Tap Wrench; 7 Dies, 1½ ins. diam., and 7 Taper Taps, cutting ¼, 5/16, ⅜, 7/16, ½, 9/16, ⅝ inch. **Price £3 15 0**

Card's "Derby" Stocks and Dies (Made in Canada)

With Round Adjustable Dies—WHITWORTH THREAD

Set **No. 70FW**. Stock 7 ins. long; Tap Wrench, 5 ins. long; 5 Dies 13/16 in. diam., and 5 Taper Taps, cutting sizes ⅛, 5/32, 3/16, 7/32, ¼ **Price £1 13 6**

Set **No. 70GW**. Stock 7 ins. long; Tap Wrench 5 ins. long; 6 Dies 13/16 in. diam. and 6 Taper Taps, cutting sizes ⅛, 5/32, 3/16, 7/32, ¼, 5/16 **Price £1 15 6**

Set **No. 70JW**. Stock 7 ins. long; Tap Wrench 5 ins. long; 8 Dies 13/16 in. diam. and 8 Taper Taps, cutting sizes 1/16, 3/32, ⅛, 5/32, 3/16, 7/32, ¼, 5/16 in. **Price £2 8 0**

"B.A." (British Association) Thread.

Set **No. 70FBA**. Five sizes, Nos. 0 to 4 with Taper Taps and Tap Wrench. **Price £1 13 6**

Set **No. 70GBA**. Six sizes, Nos. 0, 1, 2, 3, 4, 6 with Taper Taps and Tap Wrench. **Price £1 15 6**

Set **No. 70JBA**. Eight sizes, Nos. 0, 1, 2, 3, 4, 6, 8, 10 with Taper Taps and Tap Wrench. **Price £2 8 0**

STOCKS & DIES AND TAP WRENCHES, ETC.

Butterfield "Machinists" Stocks and Dies (Made in Canada)

Whitworth Thread

Set No. 50.—Stock, 12 ins. long; 5 pairs of Dies and 5 Taper Taps, cutting $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$; and Tap Wrench Dies for stock. **Price £2 1 9**

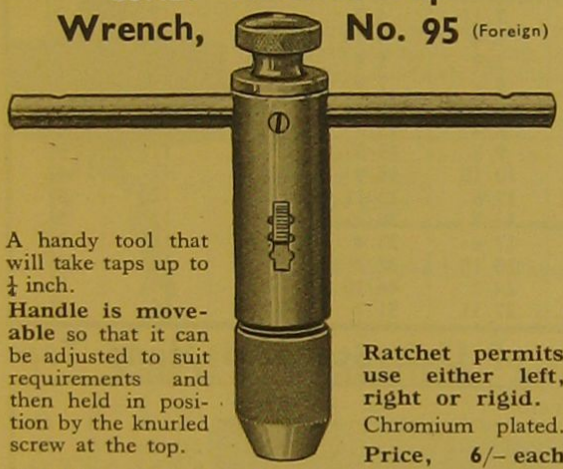
Set No. 44.—2 Stocks, 12 and 20 ins. long; 7 pairs of Dies and 7 Taper Taps, cutting $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$; and Tap Wrench Dies for stock. **Price £3 17 0**

Set No. 52.—Stock, 25 ins. long; 4 pairs of Dies and 4 Taper Taps, cutting $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1; and Tap Wrench Dies for stock. **Price £3 2 6**

Card's Tap Wrench, No. 206 (Made in U.S.A.)

Size No. ...	0	1	1½	2	3	4	5
Length, Ins.	5	7½	9½	12	14	19	24
Fits Taps, Ins.	1/16 to 3/16	1/8 to 3/8	3/16 to 1/2	1/4 to 5/8	1/2 to 33/44	33/44 to 1 1/8	7/8 to 1 1/2
Price Each	6/3	8/4	12/6	14/7	16/8	22/11	29/2
Extra Jaws, per Pair	2/1	2/6	3/2	4/2	5/3	6/3	8/4

Comet Ratchet Tap Wrench, No. 95 (Foreign)



A handy tool that will take taps up to ¼ inch.

Handle is moveable so that it can be adjusted to suit requirements and then held in position by the knurled screw at the top.

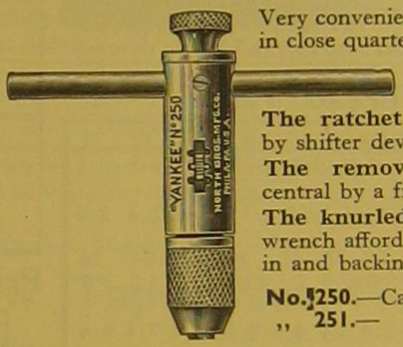
Ratchet permits use either left, right or rigid.

Chromium plated.

Price, 6/– each

"Yankee" Ratchet Tap Wrench (Made in U.S.A.)

Right and Left-Hand and Rigid



Very convenient and efficient for working in close quarters.

The ratchet mechanism is operated by shifter device on barrel.

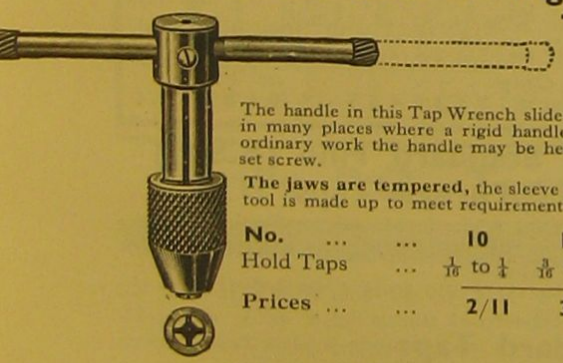
The removable crossbar is held central by a friction device.

The knurled thumb piece at top of wrench affords a ready means of starting in and backing out a tap quickly.

No. 250.—Capacity to 3/16 inch **7/6 each**
„ 251.— „ 5/16 „ **9/7 „**

Millers Falls Slide or Rigid T-Handle Tap Wrench

(Made in U.S.A.)

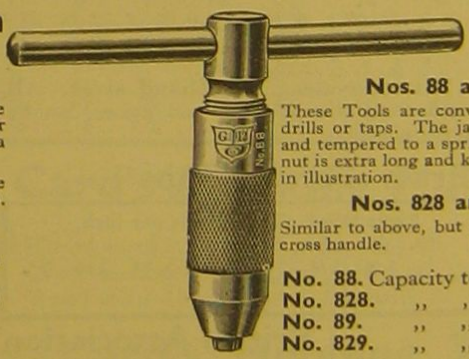


The handle in this Tap Wrench slides and so permits its use in many places where a rigid handle cannot be turned. For ordinary work the handle may be held rigidly by means of a set screw.

The jaws are tempered, the sleeve is case hardened, and the tool is made up to meet requirements of a high-class wrench.

No.	10	11	12	
Hold Taps ...	1/16 to 1/4	3/16 to 3/8	1/4 to 1/2	inch
Prices	2/11	3/9	5/–	each

Goodell Tap Holders (Made in U.S.A.)



Nos. 88 and 89

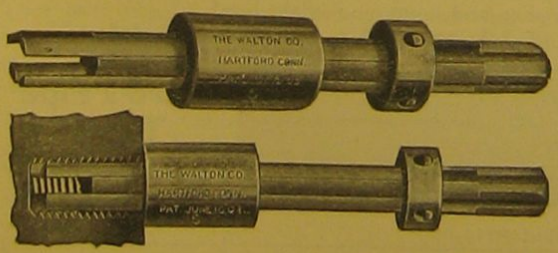
These Tools are convenient for small drills or taps. The jaws are hardened and tempered to a spring temper. The nut is extra long and knurled, as shown in illustration.

Nos. 828 and 829

Similar to above, but with ball end to cross handle.

		Each
No. 88.	Capacity to 7/32 in.	2/6
No. 828.	„ „ „	2/10
No. 89.	„ „ 1/16 in.	3/4
No. 829.	„ „ „	3/9

"Walton" Tap Extractor (Made in U.S.A.)



This Tool is for removing taps breaking at or below the surface of the work, without injury to the thread; this can be quickly and easily done. **To use the tool, allow the fingers to project a little,** as shown in illustration, then grasping the tool at the end, push the fingers into the flutes of the tap and the holder down until it touches the tap, and also the sleeve until it comes into contact with the work; this is important. A wrench should then be applied to the square end of the Extractor to back out the tap.

Sizes and Prices

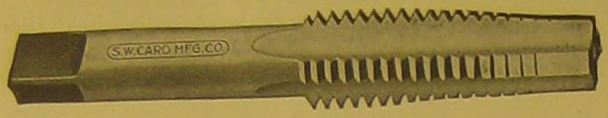
Sizes	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1 inch
Prices of Extractor, ...	6/3	6/6	6/8	6/8	7/1	7/9	8/4	9/2	10/3	11/6	13/-each
„ of Fingers ...	-/3	-/5	-/5	-/6	-/6	-/8	-/8	-/10	-/10	1/1	1/1 „

HAND AND NUT TAPS, ETC.

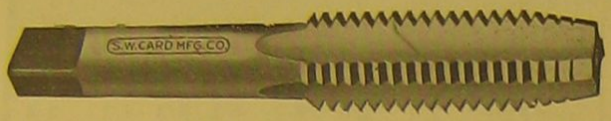
Card's Hand and Nut Taps (Made in Canada)

Nut Taps

Hand Taps



TAPER HAND TAP



PLUG ("Second") HAND TAP

BOTTOMING HAND TAP

Metric Thread Taps

Diameter ...	3	4	5	6	7	8	9	10	11
Pitch ...	·5	·75	·75	1·0	1·0	1·25	1·25	1·5	1·5
R. H. Only, Price Each...	1/8	1/6	1/8	1/11	1/11	2/1	2/4	2/4	2/6

Diameter	m/m.	12	14	16	18	20	22	24	26
Pitch ...	m/m.	1·75	2·0	2·0	2·5	2·5	2·5	3·0	3·0
Price R.H. Only, Each...		2/11	3/4	3/9	4/5	5/10	6/8	7/6	8/4

Left-hand Taps

We carry in stock the following Taps with left-hand thread:—

Whitworth Bolt $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 in.
B.A. Thread No. 2 and No. 4.
B.S.F. ,, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, and $\frac{1}{2}$ inch.

At prices as for equivalent right-hand sizes. All other left-hand taps are special and prices can be quoted only on application.

Brass Thread Taps

Right Hand. 26 Threads per Inch.

Size ... ins.	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Price Each ...	1/8	1/6	2/1	2/4	2/11	3/9	5/-

Prices of Whitworth Standard Taps

Diam. Ins.	Price Each Right Hand only: Hand Taps	Price Each Right Hand only: Nut Taps Taper	Length Overall: Hand Ins.	Length Overall: Nut Ins.	Length of Thread (Nut) Ins.
$\frac{1}{16}$	2/1	—	$1\frac{5}{8}$	—	—
$\frac{5}{64}$	1/11	—	$1\frac{11}{16}$	—	—
$\frac{3}{32}$–$\frac{7}{64}$	1/8	—	$1\frac{3}{4}$–$1\frac{13}{16}$	—	—
$\frac{1}{8}$–$\frac{5}{32}$	1/6	—	$1\frac{15}{16}$–$2\frac{1}{8}$	—	—
$\frac{3}{16}$	1/6	—	$2\frac{1}{4}$–$2\frac{3}{8}$	—	—
$\frac{7}{32}$–$\frac{1}{4}$	1/6	2/6	$2\frac{7}{16}$–$2\frac{1}{2}$	5	$1\frac{5}{8}$
$\frac{9}{32}$	2/1	2/11	—	—	—
$\frac{5}{16}$	2/1	2/11	$2\frac{23}{32}$	$5\frac{1}{2}$	$1\frac{13}{16}$
$\frac{11}{32}$	2/4	3/4	$2\frac{15}{16}$	6	2
$\frac{3}{8}$	2/6	3/9	$3\frac{5}{32}$	$6\frac{1}{2}$	$2\frac{3}{8}$
$\frac{7}{16}$	2/11	4/2	$3\frac{3}{8}$	7	$2\frac{1}{2}$
$\frac{1}{2}$	3/4	4/10	$3\frac{19}{32}$	$7\frac{1}{2}$	$2\frac{3}{4}$
$\frac{9}{16}$	3/9	5/8	$3\frac{13}{16}$	8	3
$\frac{5}{8}$	5/-	7/9	$4\frac{1}{4}$	9	$3\frac{1}{4}$
$\frac{3}{4}$	6/8	10/3	$4\frac{11}{16}$	10	$3\frac{3}{8}$
1	8/4	13/2	$5\frac{5}{8}$	11	$3\frac{3}{4}$
$1\frac{1}{8}$	9/5	15/5	$5\frac{7}{16}$	$11\frac{1}{2}$	$4\frac{3}{4}$
$1\frac{1}{4}$	10/10	18/9	$5\frac{3}{4}$	12	$4\frac{3}{4}$
$1\frac{3}{8}$	12/6	22/11	$6\frac{1}{16}$	$12\frac{1}{2}$	$5\frac{3}{8}$
$1\frac{1}{2}$	14/7	28/2	$6\frac{3}{8}$	13	$5\frac{3}{8}$
$1\frac{5}{8}$	17/6	33/4	$6\frac{11}{16}$	$13\frac{1}{2}$	$5\frac{1}{2}$
$1\frac{3}{4}$	20/10	38/7	7	14	$5\frac{1}{2}$
$1\frac{7}{8}$	24/2	44/10	$7\frac{5}{16}$	$14\frac{1}{2}$	$5\frac{1}{2}$
2	27/11	51/1	$7\frac{5}{8}$	15	$6\frac{1}{8}$

Prices of U.S. Standard Hand Taps

Diameter ... ins.	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Pitch	40	24	20	18	16	14	13
Length Overall ,,	$1\frac{15}{16}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{23}{32}$	$2\frac{15}{16}$	$3\frac{5}{32}$	$3\frac{3}{8}$
Price R.H. Only Each	1/6	1/8	1/11	2/1	2/4	2/6	2/11

Diameter ... ins.	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1
Pitch	12	11	11	10	10	9	9	8
Length Overall ins.	$3\frac{19}{32}$	$3\frac{13}{16}$	$4\frac{1}{32}$	$4\frac{1}{4}$	$4\frac{15}{32}$	$4\frac{11}{16}$	$4\frac{29}{32}$	$5\frac{1}{8}$
Price R.H. Only Each...	3/4	3/9	4/5	5/-	5/10	6/8	7/6	8/4

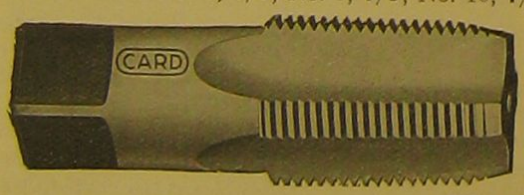
British Standard Fine (B.S.F.) Thread Taps

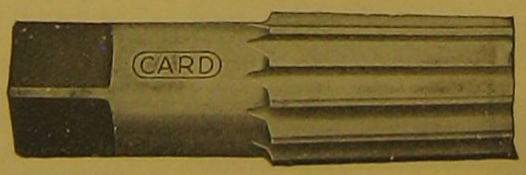
B.S.F. Hand Taps (right hand) can be furnished in the following sizes **at the same prices as Standard Whitworth Hand Taps:—**

Sizes ... $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{11}{32}$, $\frac{3}{8}$, $\frac{13}{32}$, $\frac{7}{16}$, $\frac{15}{32}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$ ins.

British Association (B.A.) Standard Taps

British Association Taps are furnished in taper, plug, and bottoming—right hand.
Nos. 0 to 8, **1/6**; No. 9, **1/8**; No. 10, **1/11**; Nos. 11 and 12, **2/1**; No. 14, **2/6**; Nos. 15 and 16, **4/2**.





Card's Pipe Taps, and Reamers
(Made in Canada)

(Whitworth Standard and Briggs)

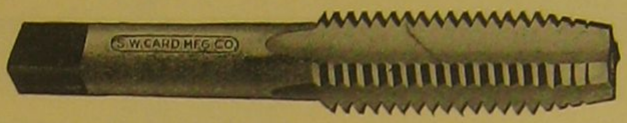
Sizes ... ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4
Prices Each	4/2	5/-	6/8	8/4	11/8	11/8	18/4	18/4	20/10	20/10	27/6	27/6	33/4	41/8	50/-	62/6	75/-	93/9	125/-	187/6

In ordering state whether Taper or Plug Taps are required. Right hand Taps only kept in stock. Left-hand Taps can be supplied to order.

GROUND THREAD TAPS, ETC.

Card's Ground Thread Hand Taps (Made in Canada)

In Regular Whitworth and B.S.F. Threads



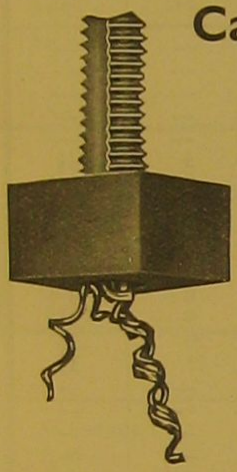
High-Speed Steel, No. 1033

Size ... ins.	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Price, Rt. Hand Only ... per doz.	31/6	33/6	39/6	46/-	54/-	73/-	96/6

Carbon Steel

Size ... ins.	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Price, Rt. Hand Only, per doz.	14/6	16/-	17/-	19/6	21/9	24/3	26/6	35/-	41/-	46/-

Card's Spiral Pointed Hand Taps, No. 1034 (Made in Canada)



These Taps are designed for tapping deep through holes in all kinds of metals or in blind holes when drilled deeply enough to allow clearance for chips at bottom of hole.

The cutting is done by the first few threads which are milled at an angle, and a long curling **chip is forced ahead of the tap.** This allows shallow straight fluting to the tap, which increases its strength.

The taps cut freely, produce excellent threads, **and one pass does the work of two and sometimes three ordinary taps. Made in Plug ("Second") style only.**

Prices—Whitworth and B.S.F. Thread Taps.

Diameter ... in.	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
No. of Flutes	2	2	2	2	2-3	3	3	3	3	3	4	4
Price, Each	1/11	2/1	2/4	2/6	2/11	3/2	3/7	4/2	4/7	6/1	7/11	10/-

Prices for other sizes on Application.

Spiral Pointed Hand Taps can be supplied in B.A. sizes—Nos. ...

	0	2	4
Price ...	2/4	2/1	1/11 each

For other B.A. threads, prices on application.

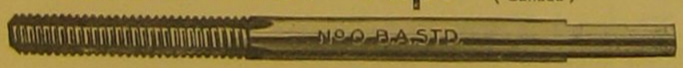
Card's Machine Screw Taps, No. 1120 (Made in Canada)

(A.S.M.E. Standard)

Furnished in three styles—Taper, Plug, and Bottoming

Size No. ...	0	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Threads per inch	80	56, 64 72	56, 64	48, 56	32, 36, 40, 48	36, 40, 44	32, 36, 40	20, 32, 36	30, 32, 36, 40	24, 30, 32	24, 28, 30, 32	24, 28, 32	20, 24	18, 20, 22	18, 20	16, 18, 20
Length of Thread, ins.	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	15/16	1	1	1 1/16	1 1/16	1 1/8
,, Overall ins.	1 1/8	1 11/16	1 3/4	1 13/16	1 7/8	1 15/16	2	2 1/16	2 1/8	2 1/4	2 3/8	2 3/8	2 1/2	2 1/2	2 33/64	2 33/64
Price. Each ...	2/1	2/1	1/11	1/8	1/8	1/6	1/6	1/6	1/6	1/6	1/8	1/11	1/11	1/11	2/1	2/1

Card's P.O. Taps (Made in Canada)



Plug ("Second") Taps only carried in stock

This style of tap is for optical and telegraph instrument makers, clock makers, photo camera makers, etc.

They have two long flats milled on the shanks, which enable them to be held in a hand vice. The extra length of shank permits their being held in a chuck on a hand lathe for tapping.

The term "Post Office Pattern Tap" was given to this pattern through its having been used by the General Post Office in the manufacturing of their telegraph instruments.

B.A.Std. No. ...	2	4	5	6	8	9
Length, ins. ...	3 1/16	2 7/8	2 25/32	2 21/32	2 15/32	2 11/32
Price, each ...	1/6	1/6	1/6	1/6	1/6	1/8

Card's Sparking Plug Taps

(Made in Canada)

Diameter 18 m/m.—1·50 m/m. pitch ...	4/5 each
Also American sizes, Briggs, 1/2-inch pipe ...	8/4 ,,
And 7/8 inch—18 pitch S.A.E. Standard... ...	6/8 ,,

Card's Hobbing Taps No. 1060 (Made in Canada)

Diameter ... ins.	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Length ... ,,	2 1/2	3 1/4	3 1/2	3 3/4	4	4 1/2	5
Price, each	6/3	6/8	7/4	7/9	8/4	9/5	11/1
Diameter ... ins.	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	
Length ... ,,	5 1/2	6	6 1/4	6 3/4	7	7 1/4	
Price, each	12/6	14/7	17/9	19/10	23/-	26/-	

COMET Taps With Relieved Threads (British Made)

NUT TAP

TAPER HAND TAP

PLUG ("SECOND") HAND TAP

BOTTOMING HAND TAP

U.S. Standard Hand Taps

Right Hand Only

Diameter... ins.	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{5}{8}$
Pitch ... ,,	18	13	11
Length Overall ,,	$2\frac{23}{32}$	$3\frac{3}{8}$	$3\frac{13}{16}$
Price per Doz. ...	11/3	18/-	24/9
Diameter ins.	$\frac{3}{4}$	$\frac{7}{8}$	1
Pitch ... ,,	10	9	8
Length Overall ,,	$4\frac{1}{4}$	$4\frac{11}{16}$	$5\frac{1}{8}$
Price per Doz. ...	31/6	42/9	54/-

Sparking Plug Taps

Diameter 18 mm.—1·5 mm. pitch—**33/9 doz.**

Hand and Nut Taps

Prices of Whitworth Standard Taps

Diam. Ins.	Price per Dozen Right Hand Only		Length Overall		Length of Thread (Nut Taps) Ins.
	Hand Taps	Nut Taps Taper	Hand Taps Ins.	Nut Taps Ins.	
$\frac{1}{16}$	11/8	—	$1\frac{5}{8}$	—	—
$\frac{3}{32}$	6/9	—	$1\frac{3}{4}$	—	—
$\frac{1}{8}$, $\frac{5}{32}$	5/7	—	$1\frac{15}{16}$	—	—
$\frac{3}{16}$	5/7	26/3	$2\frac{1}{4}$	—	—
$\frac{7}{32}$	5/7	—	$2\frac{7}{16}$	—	—
$\frac{1}{4}$	5/3	26/3	$2\frac{1}{2}$	5	$1\frac{5}{8}$
$\frac{5}{16}$	8/5	29/3	$2\frac{23}{32}$	$5\frac{1}{2}$	$1\frac{13}{16}$
$\frac{3}{8}$	10/4	33/9	$2\frac{15}{16}$	6	2
$\frac{7}{16}$	12/8	38/3	$3\frac{5}{32}$	$6\frac{1}{2}$	$2\frac{1}{8}$
$\frac{1}{2}$	14/6	45/-	$3\frac{3}{8}$	7	$2\frac{1}{2}$
$\frac{9}{16}$	21/9	—	$3\frac{19}{32}$	—	—
$\frac{5}{8}$	22/7	56/3	$3\frac{13}{16}$	8	3
$\frac{3}{4}$	29/2	81/-	$4\frac{1}{4}$	9	$3\frac{1}{4}$
$\frac{7}{8}$	39/4	99/-	$4\frac{11}{16}$	10	$3\frac{5}{8}$
1	43/6	138/-	$5\frac{1}{8}$	11	$3\frac{3}{4}$
$1\frac{1}{8}$	75/-	—	$5\frac{7}{16}$	—	—
$1\frac{1}{4}$	93/-	—	$5\frac{3}{4}$	—	—
$1\frac{3}{8}$	104/-	—	$6\frac{1}{16}$	—	—
$1\frac{1}{2}$	130/-	—	$6\frac{3}{8}$	—	—
$1\frac{5}{8}$	162/-	—	$6\frac{11}{16}$	—	—
$1\frac{3}{4}$	189/-	—	7	—	—
$1\frac{7}{8}$	234/-	—	$7\frac{5}{16}$	—	—
2	252/-	—	$7\frac{5}{8}$	—	—

British Standard Fine (B.S.F.) Thread Taps

B.S.F. Hand Taps (right hand) carried in stock in the following sizes:—

Size, diameter, ins.	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Price, per doz.	5/7	5/3	8/5	10/4	12/8	14/6	21/9	22/7	29/2	43/6

British Association (B.A.) Standard Taps

B.A. Taps are furnished in taper, plug and bottoming—right hand—in the following range:—

B.A. No.	0	1	2	3	4	5	6	7	8	9	10	12	14
Price, per doz.	7/6	7/6	7/6	7/6	7/6	7/6	7/6	7/6	7/6	11/3	11/3	20/3	24/9

Brass Thread Taps

We carry in stock Taps for Brass, 26 threads per inch, in the following range of sizes:—

Size, diameter, ins.	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$ (taper)	$\frac{9}{16}$ (taper)	$\frac{5}{8}$ (plug)	$\frac{3}{4}$
Price, per doz.	5/7	8/5	10/4	13/6	15/9	21/9	26/3	33/10

P.O. Pattern Taps

British Association Thread, Plug Taps.

B.A. Standard No.	2	3	4	5	6	7	8	9	10
Price, per doz.	10/-	10/-	10/-	10/-	10/-	10/-	10/-	15/-	15/-

Pipe Taps Whitworth Standard

Size, ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
Price, per doz.	15/-	19/6	24/-	30/-	36/-	43/-	56/3	63/-	81/-	108/-	134/-	189/-	315/-

Left-hand Taps

We carry in stock the following sizes of Whitworth Bolt Hand Taps—left hand.

Size, ins.	$\frac{5}{16}$ (Taper & Plug)	$\frac{3}{8}$ (Taper & Plug)	$\frac{1}{2}$ (Plug)	$\frac{3}{4}$
Price, per doz.	11/10	14/6	21/-	40/-

H.S.S. Ground Thread Taps and **Machine Screw Taps, A.S.M.E. Standard** can be supplied. Prices on application.

ADJUSTABLE DIES

Card's Adjustable Dies (Made in Canada)

A.S.M.E. Thread

Size of Die.	Cutting Sizes.	Price, each. Right Hand only
$\frac{5}{8}\times\frac{1}{4}$ in.	Nos. 0, 1, **3/4**; No. 2, **2/11**; No. 3, **2/6**; Nos. 4 to 14	**2/1**
$\frac{13}{16}\times\frac{1}{4}$,,	Nos. 0, 1, **3/9**; No. 2, **3/4**; No. 3, **2/11**; Nos. 4 to 20	**2/6**
$1\times\frac{3}{8}$,,	Nos. 6 to 20	**3/2**

Whitworth and U.S. Standard Bolt Thread

Size of Die	Cutting Sizes	Price Each Right Hand only
$\frac{5}{8}\times\frac{1}{4}$ in.	$\frac{1}{16}$ in., **3/4**; $\frac{5}{64}$ in., **2/11**; $\frac{3}{32}$ in., **2/6**; $\frac{7}{64}$ in., **2/1**; $\frac{1}{8}$ in.	**2/1**
$\frac{13}{16}\times\frac{1}{4}$,,	$\frac{1}{16}$ in., **3/9**; $\frac{5}{64}$ in., **2/11**; $\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ in.	**2/6**
1 $\times\frac{3}{8}$,,	$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ in.	**3/2**
$1\frac{1}{16}\times\frac{7}{16}$,,	$\frac{1}{8}$ $\frac{5}{32}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ in.	**5/3**
$1\frac{1}{8}\times\frac{1}{2}$,,	$\frac{5}{32}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ in.	**5/3**
$1\frac{3}{16}\times\frac{9}{16}$,,	$\frac{5}{32}$ $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ in.	**6/3**
$1\frac{1}{4}\times\frac{5}{8}$,,	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ in. ...	**8/4**
$2\frac{1}{4}\times\frac{3}{4}$,,	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ *$\frac{3}{8}$ *$\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{11}{16}$ $\frac{3}{4}$ $\frac{13}{16}$ $\frac{7}{8}$ $\frac{15}{16}$ 1 in.	**12/6**

*Prices for sizes $2\frac{1}{4}\times\frac{3}{4}$ and $\frac{7}{16}$ in. apply to U.S. Standard Bolt Thread Dies only.

Whitworth Standard and Briggs Pipe Thread

Size of Die	Cutting Sizes	Price Each Right Hand only
1 $\times\frac{3}{4}$ in.	$\frac{1}{4}$ in.	**3/2**
$1\frac{1}{16}\times\frac{7}{16}$,,	$\frac{1}{4}$ $\frac{5}{16}$ in., **5/3**; $\frac{3}{8}$ in.	**6/3**
$1\frac{1}{16}\times\frac{9}{16}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ in., **6/3**; $\frac{1}{2}$ in.	**7/4**
$1\frac{1}{2}\times\frac{5}{8}$,,	$\frac{1}{4}$ *$\frac{1}{4}$ *$\frac{3}{8}$ *$\frac{1}{2}$ in.	**8/4**
$2\frac{1}{4}\times\frac{3}{4}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ in., **12/6**; $\frac{3}{4}$ in., **13/7**; 1 in.	**14/7**

*Prices for sizes $1\frac{1}{2}\times\frac{1}{2}$, $\frac{3}{4}$, and $\frac{1}{2}$ in. apply to Briggs Pipe Thread Dies only.

British Association Standard Thread

Size of Die	Cutting Sizes	Price Each Right Hand only
$\frac{5}{8}$ in.	Nos. 0 to 10, **2/1**; Nos 11, 12, **2/11**; No. 14	**4/2**
$\frac{13}{16}$,, ...	,, 0 to 10, **2/6**; No. 12, **3/4**; No. 14	**4/7**
1 ,, ...	,, 0 to 5 only	**3/7**

British Standard Fine Thread

Size of Die	Cutting Sizes	Price Each Right Hand only
$\frac{13}{16}$ in.	$\frac{1}{4}$ $\frac{5}{16}$ in.	**2/6**
1 ,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ in.	**3/2**
$1\frac{1}{16}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ in.	**5/3**
$1\frac{1}{8}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ in.	**5/3**
$1\frac{3}{16}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{11}{16}$ in.	**6/3**
$1\frac{1}{4}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{11}{16}$ $\frac{3}{4}$ in.	**8/4**
$2\frac{1}{4}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ $\frac{11}{16}$ $\frac{3}{4}$ $\frac{13}{16}$ $\frac{7}{8}$ $\frac{15}{16}$ 1 in.	**12/6**

Brass Thread (26 Threads per inch)

Size of Die	Cutting Sizes	Price Each Right Hand only
$\frac{13}{16}$ in.	$\frac{1}{4}$ $\frac{5}{16}$ in.	**2/6**
1 ,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ in.	**3/2**
$1\frac{1}{16}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ in.	**5/3**
$1\frac{1}{8}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ in.	**6/3**
$1\frac{1}{4}$,,	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{9}{16}$ $\frac{5}{8}$ in.	**8/4**

Metric Threads (Systeme Internationale)

Size of Die	Cutting Sizes	Price Each Right Hand only
$\frac{13}{16}$ in.	2 m/m., **3/4**; 2·5 m/m., **2/11**; 3 3·5 4 4·5 5 5·5 6 7 8 m/m.	**2/6**
1 ,,	3·5 4 4·5 5 5·5 6 7 8 9 10 11 m/m.	**3/2**
$1\frac{1}{16}$,,	6 7 8 9 10 11 12 m/m.	**5/3**
$1\frac{1}{8}$,,	9 10 11 12 14 16 m/m.	**6/3**
$1\frac{1}{4}$,,	6 9 10 11 12 14 16 18 20 m/m.	**8/4**
$2\frac{1}{4}$,,	12 14 16 18 20 22 24 26 m/m.	**12/6**

These Stocks take Circular Dies as shown above

Card's "Diamond" Stocks No. 301, for Round Dies (Made in U.S.A.)

Drop forged steel with knurled handle.

Length ...	7	9	14	18	18	23	29	ins.
Diam. of Die	$\frac{13}{16}$	1	$1\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{9}{16}$	$1\frac{3}{4}$	$2\frac{1}{4}$	,,
Prices ...	**4/2**	**5/3**	**7/4**	**8/4**	**8/4**	**10/5**	**14/7**	each

Butterfield Stocks for Round Dies

(Made in Canada)

Stock No. D.2, Length, 7 ins.; For Dies, $\frac{13}{16}$ inch diameter

Price ... ... **4/2 each**

COMET Solid Hexagon Die Nuts (British Made)

Made from the finest crucible cast steel. Indispensable for garages, repair shops, car erectors, machine shops, etc. Used for correcting bruised threads on studs or bolts. Can be operated within confined spaces where stocks and dies could not reach.

Bolt Thread (Whitworth) (B.S.F. up to size 1¼ in.)

Diam. of Bolt	1/8	5/32	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1	1⅛	1¼	1⅜	1½	1¾	2	ins.
Threads per in.	—	—	20	18	16	14	12	12	11	10	9	8	7	7	6	6	5	4½	
Prices	2/	2/	2/	2/	2/7	2/8	2/10	3/7	4/	4/6	5/	6/	7/	7/9	8/9	10/	21/	30/	ea.

Gas Pipe Thread (Whitworth)

Diam. of Pipe (inside)	1/8	1/4	3/8	1/2	5/8	3/4	1	1¼	1½	ins.
Threads per inch	28	19	19	14	14	14	11	11	11	
Prices	2/7	3/6	4/6	5/–	6/9	7/–	9/6	14/–	20/–	each

Metric and other threads and sizes and left-hand dies can be furnished. Prices on application.

"AI" Chasers (British Made)

We can furnish both Hand and Machine Chasers as illustrated, specially made to give deep cut threads for Government work. They have been through laboratory tests with regard to accuracy, and are guaranteed correct.

MACHINE CHASERS

Up to 9 threads per inch.

Inside. Outside.
⅝ in. Sq. Shank, **5**/– ¾ in. Sq. Shank, **5**/–

10 to 40 threads per inch.

Inside. Outside.
½ in. Sq. Shank, **3**/– ½ in. Sq. Shank, **3**/–

HAND CHASERS

Threads per inch.	Shank, ins.	Inside or Outside
Up to 9 threads	¾ × 5/16	... 1/3 each
10 to 40 ,,	½ × ¼	... /8 ,,

Metric Threads

·5 to 2·5 m/m. Inside or Outside, **/8 each**
Over 2·5 m/m. ,, ,, **1/3** ,,

British Association Standard Threads

Nos. 0 to 10 ... Outside only, **/8 each**

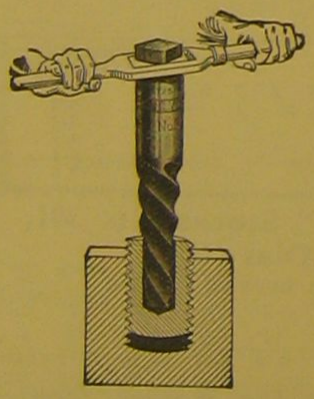
Left-hand Chasers can be supplied at the same prices.

"Ezy-out" Screw Extractor (Made in U.S.A.)

The "Ezy-out" Screw Extractor has been specially designed to facilitate the removal of broken set and cap screws, studs, stay-bolts, etc.

The operation of removing a broken screw is very simple. Merely drill a hole in the top of the broken screw, insert the proper size "Ezy-out" Extractor and turn it as though tapping.

The corkscrew-like left-hand spirals of the extractor grip the sides of the drilled hole in the screw and, as force is applied, the broken screw easily comes out. The whole operation in no way injures the threads of the original hole.



Sizes and Prices

Size No.	1	2	3	4	5	6	7	8	9	10	11	12	
Diam. at Small End	·054	·080	1/8	3/16	1/4	3/8	1/2	3/4	1	1¼	1½	1 7/8	ins.
,, ,, Large ,,	·117	·174	1/4	11/32	7/16	19/32	3/4	1 1/64	1 9/32	1 9/16	1 7/8	2 5/16	,,
Length of Flute	½	¾	1	1¼	1½	1¾	2	2⅛	2¼	2½	3	3½	,,
Length overall	2	2⅜	2 11/16	3	3⅜	3¾	4⅛	4⅜	4⅝	5	5⅝	6¼	,,
Size Drill to use	5/64	7/64	5/32	1/4	17/64	13/32	17/32	13/16	1 1/16	1 5/16	1 9/16	1 15/16	,,
Price	2/3	2/6	2/9	3/3	3/6	4/3	5/9	7/9	11/–	16/9	22/6	28/–	each

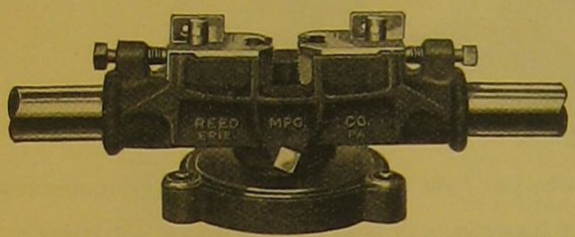
Prices, Sets of "Ezy-out" Screw Extractors

Set No. 15—In wooden case containing Extractors Nos. 1 to 5 inclusive		**12/6**
,, ,, **15A**— ,, ,, ,, ,, Nos. 1 to 6 ,, ...		**16/9**
,, ,, **16**— ,, ,, ,, ,, Nos. 6 to 9 ,, ...		**28/–**
,, ,, **17**— ,, ,, ,, ,, Nos. 4, 5, and 6		**10/–**
,, ,, **20**— ,, ,, ,, ,, Nos. 1 to 6 inclusive with necessary drills		**21/–**

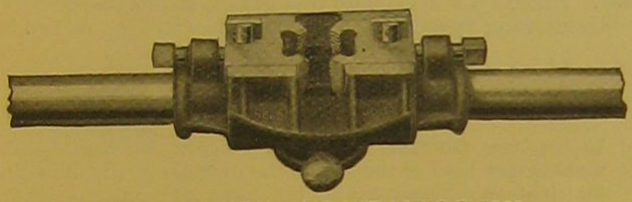
Reed Improved Adjustable Stocks and Dies (Made in U.S.A.)

Series AP and AL

With Double Threaded Throat Dies



STYLE FOR SETS Nos. 22AP. 22½AP. and 23AP. WITH ADJUSTABLE GUIDES.



STYLE FOR SET Nos. 1AP, WITH RING GUIDES.

Every set and every part of a set is guaranteed by the makers to be just right in every detail. All Reed Adjustable Stocks and Dies are standard in size and design, and all parts are interchangeable with similar parts of the Armstrong make.

The question of "rake" has been carefully and fully worked out and the results incorporated in the dies.

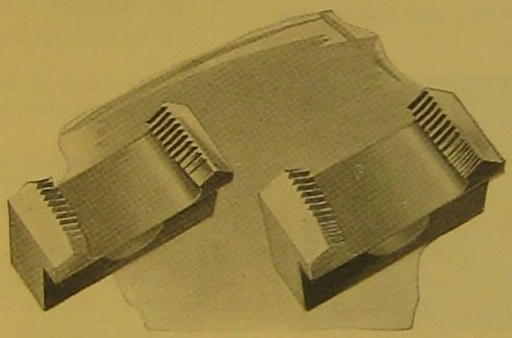
Adjustable Guides are regularly fitted on sets 22AP, 22½ AP, and 23AP.

All Reed dies are made of special alloy steel and to ensure uniformity are hardened and tempered to an exact degree of heat by electric furnaces. Accuracy in size of thread is ensured by careful gauging.

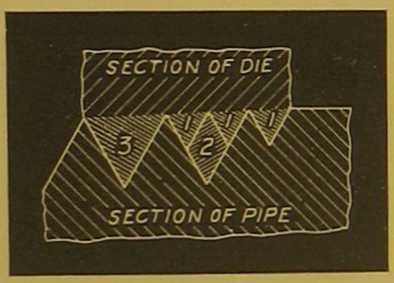
Thickness of dies is graduated to give each pipe size the proper length thread. All sets are packed separately in neat fibre board boxes.

Dies with Double Threaded Throat Feature

In the new **Double-Threaded Throat** the fine double threads take hold of the end of the pipe and easily draw the die right on without any of the customary pushing effort. Then the single thread section follows along and removes the balance of the metal. The **Double-Threaded Throat** die starts easy and finishes easy.



ORDINARY THROAT DOUBLE-THREADED THROAT



1. Shows metal removed by the fine double threads of the throat.
2. Shows metal left by double threads, which is removed by single threads that follow.
3. Shows total metal removed, leaving smooth, clean, accurate threads.

An important element making for easier, cleaner cutting in Reed dies is the angle of rake. The cutting edge of the die meets the pipe at an angle which makes it cut instead of scrape away the metal. Rough torn threads always indicate scraping action. It takes less power (20 to 35 per cent less) to cut than to scrape—and cutting gives perfect, clean, smooth threads.

Pipe Sizes—Prices.

Set No.	Pipe Sizes of Dies in inches	Price, Complete	Stocks only, Each	Pipe Dies Right Hand: Width Ins.	Pipe Dies Right Hand: Price, Each	Bushings, Each
1AP1 With Ring Guides	¼, ⅜, ½, ¾	£1 17 6	13/7	1	6/8	1/3
22AP1	¼, ⅜, ½, ¾, 1	2 18 4				
22AP2	¼, ⅜, ½, ¾, 1 ...	3 6 8				
22AP3	¼, ⅜, ½, ¾	2 18 4				
22AP4	¼, ⅜, ½, 1	2 12 1	16/8	1½	8/4	1/8
22AP5	¼, ⅜, 1	2 4 10				
22AP6	¼, ⅜	1 17 6				
22½AP1	¼, ⅜, 1, 1¼	3 8 9	21/11	1¼	10/5	2/6
22½AP2	¼, ⅜, ½, 1, 1¼	3 19 2				

Set No.	Pipe Sizes of Dies in Inches	Price, Complete	Stocks only, Each	Pipe Dies Right Hand: Width Ins.	Pipe Dies Right Hand: Price, Each
22½AP3	¼, ⅜, ½, ¾, 1, 1¼ ...	£4 9 7	21/11	1¼	10/5
22½AP4	¼, ⅜, ½, ¾, 1, 1¼ ...	5 0 0			
22½AP5	¼, ⅜, 1, 1¼, 1½ ...	3 19 2			
23AP1	1¼, 1½, 2 ...	4 7 6			
23AP2	1, 1¼, 1½, 2 ...	5 0 0	29/2	2½	14/7
23AP3	¾, 1, 1¼, 1½, 2 ...	5 12 6			
33AP4	½, ¾, 1, 1¼, 1½, 2 ...	6 5 0			

With Adj. Guides

Bolt Sizes—Prices

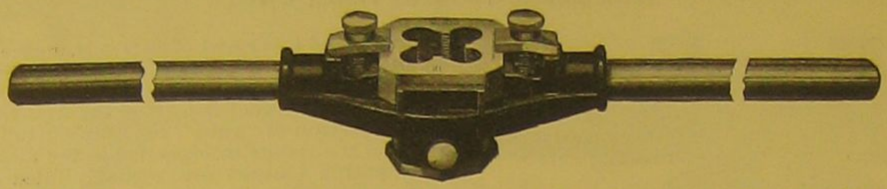
Set No. With Ring Guides	Bolt Sizes of Dies In Inches	Price, Complete	Stocks only, Each	Bolt Dies Right Hand: Size Ins.	Bolt Dies Right Hand: Price Each	Bushings, Each
1AL2	¼, 5/16, ⅜, 7/16, ½ ...	£2 7 11	13/7	¼–5/16	6/3	1/3
1AL3	¼, ⅜, ½, ⅝, ¾ ...	2 10 0		½–¾	7/4	
1AL4	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾ ...	3 2 6				
2AL1	¼, ⅜, ½, ¾, 1	3 2 6	16/8	¼–1	8/4	1/8
2AL2	¼, ⅜, ½, ¾, 1, 1¼ ...	4 3 4		1¼–1½	9/5	

Set No. With Ring Guides	Bolt Sizes of Dies In Inches	Price, Complete	Stocks only, Each	Bolt Dies Right Hand: Size Ins.	Bolt Dies Right Hand: Price Each	Bushings, Each
2AL3	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾ ...	£4 3 4	16/8	¼–1	8/4	1/8
2AL4	¼, ⅜, ½, ¾, 1, 1¼, 1½ ...	4 3 4				
2AL5	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾, 1	5 4 2		1¼–1½	9/5	
2AL6	¼, 5/16, ⅜, ½, ⅝, ¾, 1, 1¼ ...	6 5 0				

Left Hand Dies, either pipe or bolt sizes can be supplied at prices double the list of equivalent sizes of Right Hand Dies.

Reed Improved Malleable Stocks and Dies (Made in U.S.A.)

Series SP and SL with Double-Threaded Throat Dies



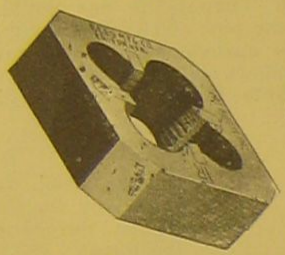
Reed Improved "Q & E" Dies are guaranteed by the makers to be just right in every detail, **and are interchangeable with all standard stocks of this type.**

The question of rake, clearance, angle of throat, and angle of chaser have all been carefully worked out, giving a very high degree of efficiency in cutting.

In this redesigned stock an ingenious clamping arrangement holds dies securely in place, but they can be very easily changed, and removal of chips and dirt is greatly facilitated. All sets are fitted with ring guides, as illustrated.

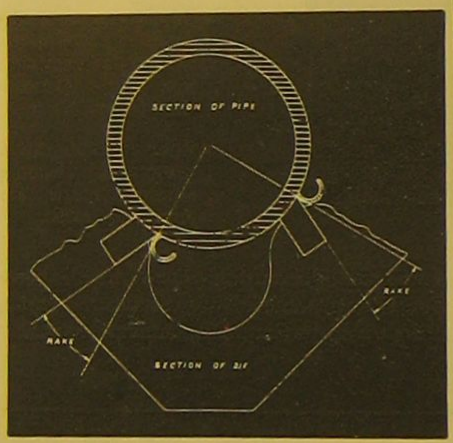
Another improvement is the absence of a cover plate—the screwing operation being always in view and oil can be applied to the thread.

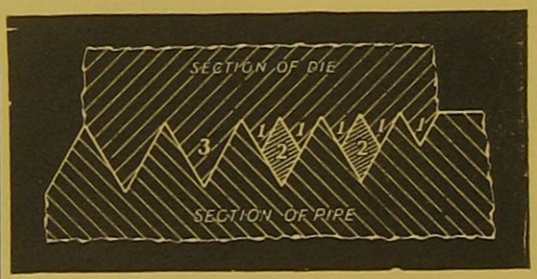
Handles are polished and have rounded ends; guides are machined both inside and out.



Dies with Double-Threaded Throat Feature

In the new **Double-Threaded Throat** the fine double threads take hold of the end of the pipe and easily draw the die right on without any of the customary pushing effort. Then the single thread section follows along and removes the balance of the metal. The **Double-Threaded Throat** die starts easy and finishes easy.





1. Shows metal removed by the fine double threads of the throat.
2. Shows metal left by double threads, which is removed by single threads that follow.
3. Shows total metal removed, leaving smooth, clean, accurate threads.

An important element making for easier, cleaner cutting in Reed dies is the angle of rake. As shown in the diagram the cutting edge of the die meets the pipe at an angle which makes it cut instead of scrape away the metal. Rough torn threads always indicate scraping action. It takes less power (20 to 35 per cent less) to cut than to scrape—and cutting gives perfect, clean, smooth threads. **Dies are graduated in thickness** to give each pipe size the proper length thread and correct taper.

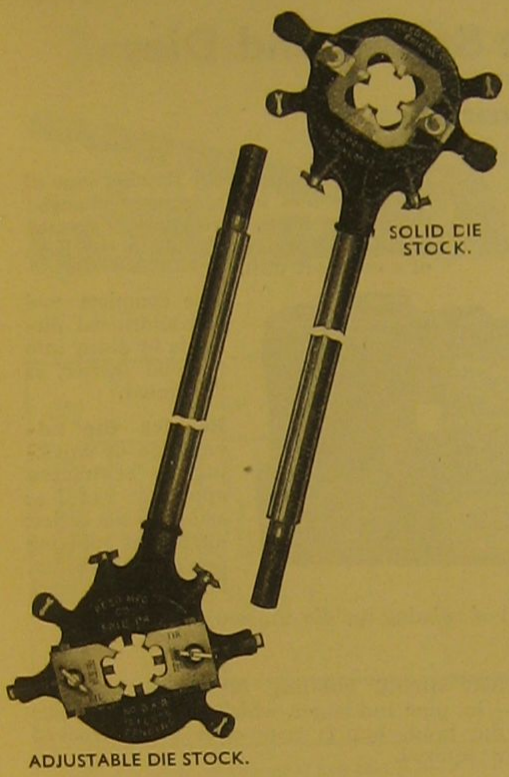
Pipe Sizes—Prices

Set No.	Pipe Sizes of Dies Inches	Price, Complete	Stocks only, Each	Pipe Dies, Right Hand: Size Ins.	Pipe Dies, Right Hand: Each	Bushings, Each
00SP1	¼, ⅜, ½, ¾	£1 11 3	11/6	1¼×1¼	5/10	1/3
00SP2	¼, ⅜, ½	1 6 1				
0SP1	¼, ⅜, ½	1 13 4	12/6	2×2	5/10	1/3
1SP1	¼, ⅜, ½, ¾, 1	2 3 9				
1SP2	¼, ⅜, ½, ¾, 1, 1¼	2 10 0				
1SP3	¼, ⅜, ½, ¾, 1	2 3 9	14/7	2½×2½	6/8	1/8
1SP4	¼, ½, 1	1 11 3				
1SP5	⅜, ½, ¾, 1	1 17 6				
1SP6	½, ¾	£1 5 0	14/7	2½×2½	6/8	1/8
1½SP1	¾, 1, 1½	1 19 7				
1½SP3	½, ⅝, ¾, ⅞, 1, 1¼ ...	3 4 7	16/8	3×3	8/4	2/6
1½SP5	½, ¾, 1, 1¼	2 7 11				
2SP1	1¼, 1½, 2	3 0 5				
2SP2	1, 1¼, 1½, 2	3 10 10	35/5	4×4	10/5	3/2
2SP3	¾, 1, 1¼, 1½, 2 ...	4 1 3				
2SP4	½, ¾, 1, 1¼, 1½, 2 ...	4 11 8				

Bolt Sizes—Prices

Set No.	Bolt Sizes of Dies Inches	Price, Complete	Stocks only, Each	Bolt Dies, Right Hand: Size Ins.	Bolt Dies, Right Hand: Each	Bushings, Each
0SL2	¼, 5/16, ⅜, 7/16, ½	£2 5 10	12/6	2×2	6/3	1/3
0SL3	¼, ⅜, ½, ¾, 1	2 5 10				
0SL4	¼, 5/16, ⅜, 7/16, ½, ¾, 1 ...	2 18 4				
1SL1	¼, ⅜, ½, ¾, 1	3 2 6				
1SL2	¼, ⅜, ½, ⅝, ¾, 1 ...	3 19 2	14/7	2½×2½	8/4	1/8
1SL3	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾ ...	3 19 2				
1SL4	½, ⅝, ¾, ⅞, 1, 1¼, 1½ ...	£3 19 2	14/7	2½×2½	8/4	1/8
1SL5	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾, ⅞, 1	4 15 10				
1SL6	¼, 5/16, ⅜, 7/16, ½, ⅝, ¾, ⅞, 1, 1¼, 1½	5 12 6				
1½SL1	¾, 1, 1¼, 1½	3 6 8	16/8	3×3	10/5	2/6
1½SL2	½, ¾, 1, 1¼, 1½, 1¾ ...	4 7 6				

Left Hand Dies, either pipe or bolt sizes, can be supplied at prices double the list of equivalent sizes of Right Hand Dies.



ADJUSTABLE DIE STOCK.

Reed Adjustable Guide Ratchet Pipe Stock (Made in U.S.A.) either with Adjustable or Solid dies

With Double Threaded Throat Dies

This new inexpensive Ratchet Pipe Stock by Reed is an extra strong tool, built to withstand hard service and produce accurate threads.

The following are points of interest:—

It is unnecessary to remove the burr from the pipe, the **double-threaded throat** starts cutting at once.

Adjustable guides centre the stock on the pipe and allow long threading to be done.

Dies are very easy cutting.

Increased leverage can be obtained by the use of the telescopic handle.

The reversible ratchet, which can be instantly changed, enables both right and left-hand threads to be cut, the range covering from ½ to 2 inches.

The ratchet action makes it possible to work this tool in close quarters.

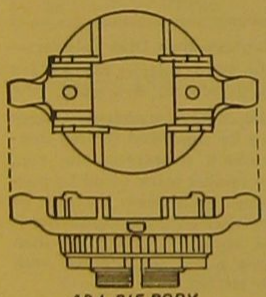
The Dies used are of special new design and have a cutting edge as long as a standard pipe thread.

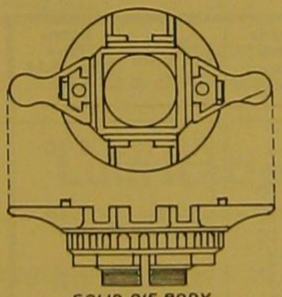
The Reed Ratchet Pipe Stock is very simple in design and can be quickly taken apart for cleaning and reassembled.

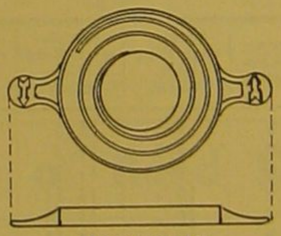
Set No.	Pipe Capacity, Ins.	Price, Complete	Extra Dies, Right Hand Each	Extra Guides Each
3 AR Series with Adjustable Dies				
3 AR 1	1, 1¼, 1½, 2 ...	£6 5 0	¼ to 2 ins. 14/7	*¼ or ⅜ in. 1/8
3 AR 2	1¼, 1½, 2 ...	5 11 6		
3 AR 3	¾, 1, 1¼, 1½, 2 ...	7 1 8		
3 AR 4	½, ¾, 1, 1¼, 1½, 2	7 18 4		
2 SR Series with Solid Dies				
2 SR 1	1, 1¼, 1½, 2 ...	£6 5 0	¼ to 2 ins. 10/5	*¼ or ⅜ in. 1/8
2 SR 2	1¼, 1½, 2 ...	5 11 6		
2 SR 3	¾, 1, 1¼, 1½, 2 ...	6 17 6		
2 SR 4	½, ¾, 1, 1¼, 1½, 2	7 10 0		

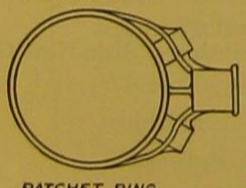
*The minimum capacity of adjustable guide for Ratchet Stock is ½-in. pipe, so if ¼-in. or ⅜-in. dies are used, ¼-in. or ⅜-in. unit guides should be clamped in the adjustable guide jaws.

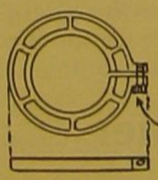
Left-hand Dies—pipe or bolt sizes, can be supplied at prices double the list of equivalent sizes of Right-hand Dies.


ADJ. DIE BODY PART NO. 225

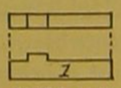

SOLID DIE BODY PART NO. 226


SCROLL PLATE PART NO. 227

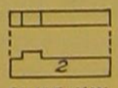

RATCHET RING PART NO. 228



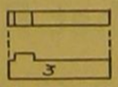
SPLIT RING NUT PART NO. 229



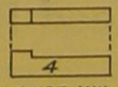
GUIDE JAW PART NO. 230



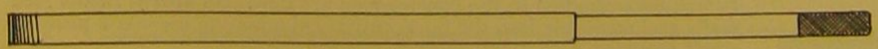
GUIDE JAW PART NO. 231



GUIDE JAW PART NO. 232

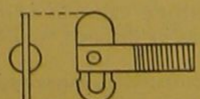


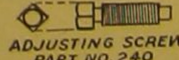
GUIDE JAW PART NO. 233


TELESCOPIC HANDLE PART NO. 234-9

CLAMP SCREW FOR SOLID DIES PART NO. 241

RATCHET PAWL PART NO. 242


CLAMP SCREW FOR ADJ. DIES PART NO. 243

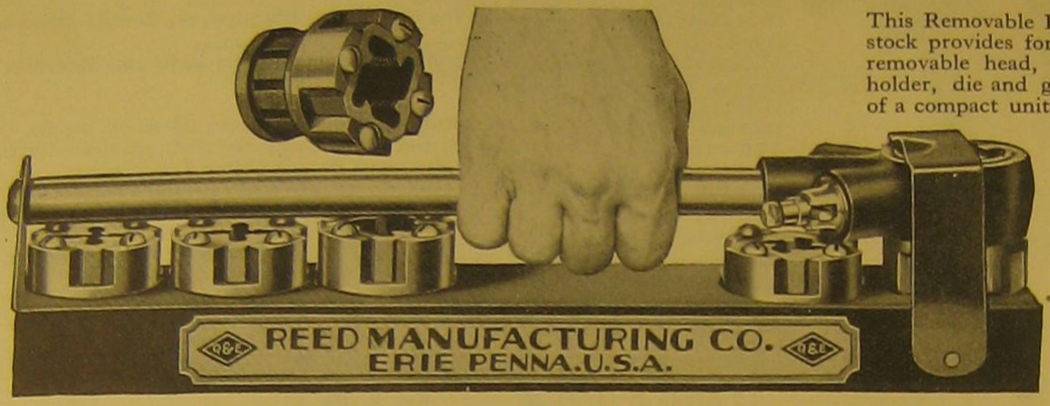

ADJUSTING SCREW PART NO. 240

Repair Parts for Adjustable Guide Ratchet Stocks

Part No.		Price, each
220.	Stock complete with handle for solid or adjustable dies ...	£4 3 4
225.	Stock body for adjustable dies ...	1 5 0
226.	Stock body for solid dies	1 5 0
227.	Scroll Plate for adjustable guide ...	0 18 4
228.	Ratchet Ring ...	0 16 8
229.	Split Ring Nut ...	0 7 1
229 A.	Lock Screw for spring ring nut	0 0 5
230.	Adjustable Guide Jaw No. 1 ...	0 2 9
231.	Adjustable Guide Jaw No. 2	0 2 9
232.	Adjustable Guide Jaw No. 3	0 2 9
233.	Adjustable Guide Jaw No. 4	0 2 9
234–9.	Telescopic Handle complete	0 15 0
240.	Adjusting Screw for adjustable dies ...	0 1 11
241.	Clamp Screw for solid dies	0 2 4
241 A.	Die Clamp for solid dies	0 0 8
241 B.	Clamp Screw Spring	0 0 5
242.	Ratchet Pawl ...	0 6 8
243.	Clamp Screw for adjustable dies ...	0 2 4

Reed Removable Head Ratchet Stocks and Dies

With Double-Threaded Throat Dies



This Removable Head Ratchet type of stock provides for a quickly changed removable head, consisting of a die holder, die and guide, all in the form of a compact unit.

The complete tool and additional die-heads fit nicely into a metal carrier, as illustrated.

Besides the advantage of working in restricted spaces, ratchet action is the easiest method of applying power in threading, because you work in a more natural position than is possible with a two-handled stock—instead of twisting the die on, you pump it on.

The Reed Ratchet has the following new and exclusive features.

1. **Patented double-threaded throat dies,** which start on the pipe with surprising ease, and without the hard pushing effort necessary with other dies.
2. **A patented carrier,** which acts as a permanent holder for the set, and is most convenient for carrying about.
3. **Two pawls, acting alternately,** which reduce lost motion one-half and permit use of the stock in more restricted space than that of any other make.
4. **A hardened spring bushing for guide holes** in heads for ½ in. pipe and larger, which not only prevents wear of the head, but is removable when crooked threads are required.
5. A patented feature which prevents the head from dropping out when in use.
6. Dies which will thread iron, steel, or brass equally well.

Set No.	Range Pipe Sizes of Dies, Ins.	Price, Complete Each	Extra Ratchets Complete	Heads with Pipe Dies Each	Heads with Bolt Dies Each	Heads with Screws Only	Size of Die Block Ins.	Extra Pipe Dies, R.H. Each
701	⅛, ¼, ⅜, ½, ¾,	£3 5 8	18/9	9/5	11/3	5/3		
702	¼, ⅜, ½, ¾ ...	2 16 3	18/9	9/5	11/3	5/3	1⅝×1⅝	5/10
703	⅜, ½, ¾ ...	2 6 11	18/9	9/5	11/3	5/3		
711	⅛, ¼, ⅜, ½, ¾, 1	3 18 9	18/9	10/-	11/11	5/10		
712	¼, ⅜, ½, ¾, 1 ...	3 8 9	18/9	10/-	11/11	5/10	2×2	5/10
714	½, ¾, 1 ...	2 8 9	18/9	10/-	11/11	5/10		
722	¼, ⅜, ½, ¾, 1, 1¼	4 2 4	19/10	10/5	13/7	6/3		
724	½, ¾, 1, 1¼ ...	3 1 6	19/10	10/5	13/7	6/3	2½×2½	6/8
725	¾, 1, 1¼ ...	2 11 1	19/10	10/5	13/7	6/3		

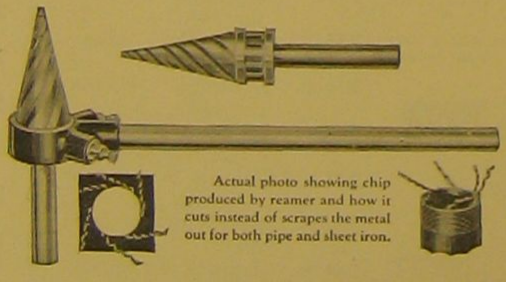
Replace Bolt Dies only for:—**No. 70, 6/3 each; No. 71, 6/3 each; No. 72, 8/4 each.**

The Sets enumerated here can be modified to suit customer's requirements, e.g., the ratchet stock could be purchased with heads for pipe or heads for bolt, but the carrier is not supplied when less than three heads are ordered with the ratchet.

Ratchet Pawls ... 3/4 each

Left Hand Dies, either pipe or bolt sizes, can be supplied at prices double the list of equivalent sizes of Right Hand Dies.

Reed Ratchet Reamer (Made in U.S.A.)


Actual photo showing chip produced by reamer and how it cuts instead of scrapes the metal out for both pipe and sheet iron.

The Reed Ratchet Reamer reams pipe in a fraction of the time heretofore necessary.

Principles embodied in the construction are new. **Its spiral flutes** feed easily and smoothly into the burr, entirely eliminating the hard pushing effort required with other types of reamers.

It cuts and not scrapes the burr thus leaving the completed cut smooth and clean.

Reamer Cone is of one piece steel. Suitable for sheet iron No. 12 gauge or thinner, washers, soil pipe stocks, and other similar uses.

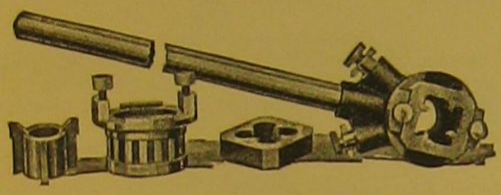
No. 271. Reamer Assembly complete, capacity ¼–2 ins. ... **£2 11 6**

No. 71. Reamer unit only (comprising cone, head and handle) **£1 14 9**

The Reamer Unit No. 71 will fit Removable Head Ratchet Sets, Nos. 711 to 714

Reed Standard Ratchet Stocks and Dies for Pipe (Made in U.S.A.)

With Double Threaded Throat Dies



The Standard Ratchet Stock with Reed "Q & E" Dies is a medium-priced tool made in a large range of sizes. It is made up of a ratchet stock with a single head or die holder and various assortments of dies and guides as listed below.

The easy starting, easy cutting, double-threaded throat dies which are used in this stock, together with the specially designed ratchet mechanism, reduce lost motion to minimum. The dies cut practically as soon as the handle is moved.

Pipe Sizes—Prices

Set No.	Pipe Sizes of Dies, In Inches	Price per Set	Ratchets Complete Each	Extra Dies Right Hand Each	Size of Die Block Ins.	Heads with Screws Only	Extra Guides Each
801	⅛, ¼, ⅜, ½, ¾	£2 14 2	18/9	5/10	1⅝×1⅝	5/10	1/6
812	¼, ⅜, ½, ¾, 1	2 16 3	18/9	5/10	2×2	6/8	1/8
824	½, ¾, 1, 1¼	2 12 1	19/10	6/8	2½×2½	7/4	2/1
834	½, ¾, 1, 1¼, 1½	3 6 8	19/10	8/4	3×3	8/4	2/6
835	¾, 1, 1¼, 1½	2 17 4	19/10	8/4	3×3	8/4	2/6
836	1, 1¼, 1½	2 7 11	19/10	8/4	3×3	8/4	2/6
844	½, ¾, 1, 1¼, 1½, 2	4 6 6	20/10	10/5	4×4	10/5	3/2
845	¾, 1, 1¼, 1½, 2	3 15 0	20/10	10/5	4×4	10/5	3/2
846	1, 1¼, 1½, 2	3 3 7	20/10	10/5	4×4	10/5	3/2
847	1¼, 1½, 2	2 12 1	20/10	10/5	4×4	10/5	3/2

Bolt Sizes—Prices

Set No.	No. and Range of Bolt Dies in Set	Price per Set	Extra Dies Right Hand Each	Size of Die Block Ins.	Heads with Screws Only	Extra Guides Each
80	Five ¼—¾ in.	£2 15 3	6/3	1⅝×1⅝	5/10	1/6
81	Five ¼—1 in.	2 17 4	6/3	2×2	6/8	1/8
82	Five ¼—1¼ ins.	3 7 9	8/4	2½×2½	8/4	2/1
83	Three ¾—1½ ins.	2 16 1	10/5	3×3	8/4	2/6
84	Three 1—2 ins.	3 7 9	14/7	4×4	10/5	3/2

Extra Ratchet Pawls ... ... 3/4 each

Left Hand Dies, either pipe or bolt sizes can be supplied at prices double the list of equivalent sizes of Right Hand Dies.

Lubrication of Reed Dies

Special attention is drawn to the necessity of using correct oil for all pipe threading work. Many users consider an ordinary lubricating oil sufficient. This is not so—it only damages the dies.

We strongly recommend the use of Oster Bestoil which has a penetrating action resulting in correctly formed clean threads, and ensuring long life to the Dies. We will gladly replace free of all charge, dies which are genuinely defective, but cannot accept responsibility for dies which have been damaged through lack of oil or use of unsuitable oil.

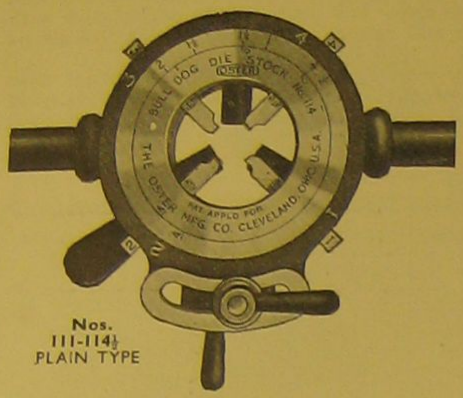
Oster "Bestoil" (Made in U.S.A.)

Recommended for use when pipe threading with Reed and Oster Dies, this high grade compound embodies the merits of lard oil without its disadvantages. It does not congeal and has no disagreeable odour.

Prices

1	gallon Cans	7/6 per American Gallon
2	,, ,, ...	6/9 ,, ,, ,,
5	,, ,, ...	6/3 ,, ,, ,,
30	,, Drums	5/6 ,, ,, ,,
55	,, ,, ...	5/- ,, ,, ,,

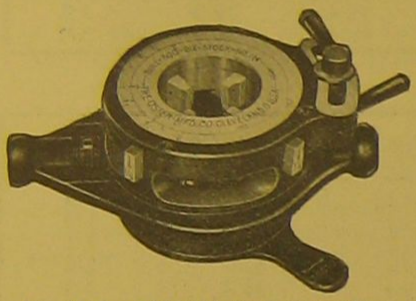
Oster Improved "Bull-Dog" Die Stocks (Made in U.S.A.)



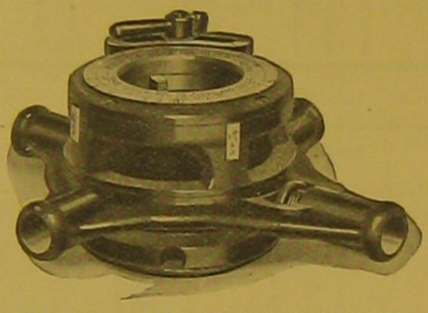
Nos. 111-114½ PLAIN TYPE

Oster "Bull-Dog" Die Stocks, redesigned and embodying simplified parts, incorporate a number of improvements detailed below:—

1. **Quicker and more positive cam device** for opening and closing the dies.
2. **Larger bore** which increases the chip clearance and provides easier oiling of the dies.
   Guides are self-locking and self-centring.
3. **Simplified method of holding the guide cam** at even pressure against the guides.
4. **New type ratchet device** with built-in control wheel.
5. **Dies are unchanged** and therefore are interchangeable in old models. They are supplied four pieces to a set.
   Dies open to release the work and are instantly reset to size. No backing off required.
6. **Lighter weight** with increased strength. The stock for threading 2-in. pipe is 3 lbs. lighter than the old model and that of the 4-in. size is 10 lbs. lighter.
7. General appearance of tool has been greatly improved.
8. More compact.



No. 114R. RATCHET TYPE WITH TWO HANDLES



No. 115R. RATCHET TYPE WITH FOUR HANDLES

In the rachet type a unique innovation has been made, in that the use of a built-in ratchet control wheel has eliminated the necessity of having an extra socket for the ratchet handle. This type of ratchet device permits the tool to be used either for right or left-hand threads, or as a plain type without the ratchet, by merely turning the control wheel to the desired position.

The Improved Oster "Bull-Dog" Die Stocks are to be strongly recommended on account of the simplicity of operation combined with their lightness of weight.

Plain Type

No.	Net Weight	Pipe Sizes Screwed	Sets of Dies	Price Complete	Extra Dies Right or Left
	Lbs.	Ins.			Per Set
111	8	¼ to ¾	2	£3 10 10	£0 12 6
111½	8	⅛ ,, ¾	3	4 3 4	0 12 6
112	13	¼ ,, 1¼	3	4 11 8	0 14 7
113	17	1 ,, 2	2	5 0 0	0 16 8
114	18	½ ,, 2	3	5 16 8	0 16 8
114½	19	¼ ,, 2	4	6 13 4	0 16 8
*115	45	1½ ,, 3	2	8 15 0	1 9 2
*115½	47	1 ,, 3	3	10 4 2	1 9 2
*117	50	2½ ,, 4	2	10 8 4	1 13 4
*117½	53	1½ ,, 4	3	12 1 8	1 13 4

*These Sets furnished for British Standard Conduit Thread only.

Ratchet Type

No.	Net Weight	Pipe Sizes Screwed	Sets of Dies	Price Complete	Extra Dies Right or Left
	Lbs.	Ins.			Per Set
112R	18	¼ to 1¼	3	£5 16 8	£0 14 7
113R	22	1 ,, 2	2	6 5 0	0 16 8
114R	23	½ ,, 2	3	7 1 8	0 16 8
114½R	24	¼ ,, 2	4	7 18 4	0 16 8
115R	68	1½ ,, 3	2	12 10 0	1 9 2
115½R	70	1 ,, 3	3	13 19 2	1 9 2
117R	74	2¼ ,, 4	2	14 11 8	1 13 4
117½R	77	1½ ,, 4	3	16 5 0	1 13 4

Conduit Sizes

Pitches

Size of Die ...	½ and ⅝	¾, ⅞, 1, and 1¼	1½ and 2
Threads per inch ...	18	16	14

No.	Weight	Pipe Sizes Screwed	Sets of Dies	Price Complete	Extra Dies Right or Left
	Lbs.	Ins.			Per Set
111C	8	½ to 1	2	£4 3 4	£0 18 9
112C	14	½ ,, 1½	4	6 15 5	1 1 11
113C	19	¾ ,, 2	4	8 6 8	1 5 0

No. 114X for Copper Tubes

Pitches

Size of Die ins.	⅜, ½, and ¾	1, 1¼, and 1½	1¾ and 2
Gauge	15	14	13
Threads per inch	20	20	16

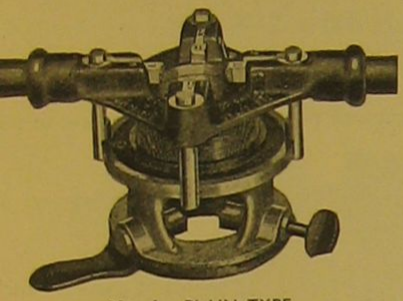
No. 114X. Complete with 3 sets of dies, ⅜ to 2 ins. for copper thread (British Standard Table 1).

Price	**£7 1 8**
Extra Dies, per set	**1 5 0**

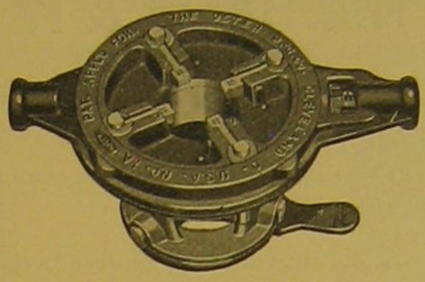
Dies will fit the ordinary No. 114 Stock. The No. 114X Stock is graduated for both copper and gas sizes, so that gas dies can be added when desired.

Extra dies for left hand or straight threads can be furnished for all tools at the prices listed above. Bolt Dies, one set to a size, can be furnished at 50% advance price of Pipe Dies.

Oster "Leader" Receding Type Die Stocks (Made in U.S.A.)



No. 1. PLAIN TYPE

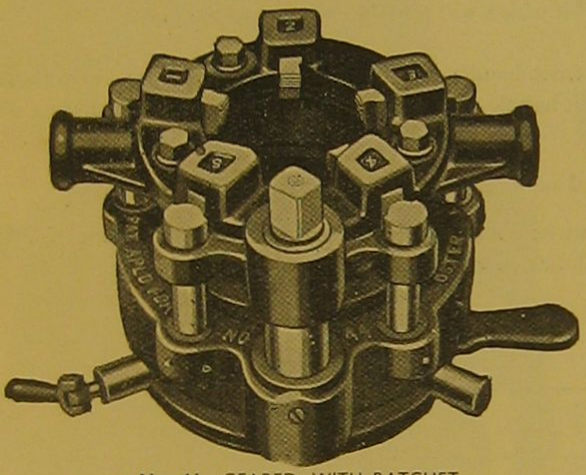


No. 1A. RATCHET TYPE

The Oster "Leader" Die Stock is built on the easy cutting, leader screw principle, with narrow, receding dies which reduce to a minimum the effort required to cut a thread.

Universal Guides, which automatically centre all sizes of pipe within the range of the tool, eliminate the use of bushings and set screws.

Cutting edge of dies is hollow ground with lead fully ground to permit easy starting and cutting.



No. 44. GEARED, WITH RATCHET

Floating studs replace the usual rigid type, and reduce the number of parts.

The bore of the tool takes a 2 in. coupling without removing any parts, and a 2 in. nipple can be easily threaded.

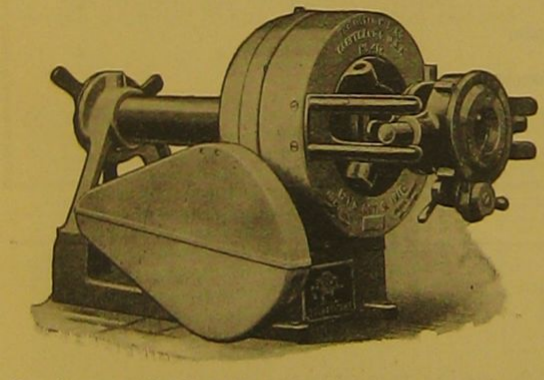
Adjustment by simple rotary movement of the lead is provided for deep or shallow threads.

Ratchet Type "Leader" Die Stocks have built in ratchet control in handle socket. Positive in action this device can quickly be set for forward or reverse, or for locking the tool for use as a plain tool.

No. 44 can be adapted for use with Oster Power Boy No. 412 and Tom Thumb, No. 512.

No.	**1 (Plain)**	**1A (Ratchet)**	**44 (Geared Ratchet)**
Capacity ... ins.	1 to 2	1 to 2	2½ to 4
Sets of Dies ...	4	4	4
Approx. Weight lbs.	15	21	93
Price each	**£4 0 0**	**£5 0 0**	**£20 16 8**
Extra Dies, per set	**6 3**	**6 3**	**£ 1 13 4**

Oster Power Boy, Nos. 412 and 414 (Made in U.S.A.)



This is a Power Machine which is portable. It is simple and compact in construction, and can conveniently be operated by connecting to an ordinary electric light socket. Practically any die stock can be used with the machines, but the popular No. 114 Die Stock for No. 412 machine and No. 117 Die Stock for No. 414 machine are recommended as most suitable.

A built-in scroll chuck and auxiliary centring guide, both self-centring and self-locking, eliminate the use of a separate vice and pipe rest.

All gears cut from the solid, are completely enclosed, and run in oil.

The Machines are driven by a ⅓ H.P. Universal reversing variable speed motor.

Equipment included:—Motor of standard voltage, (110 and 220 volts) complete with switch and flexible cord.

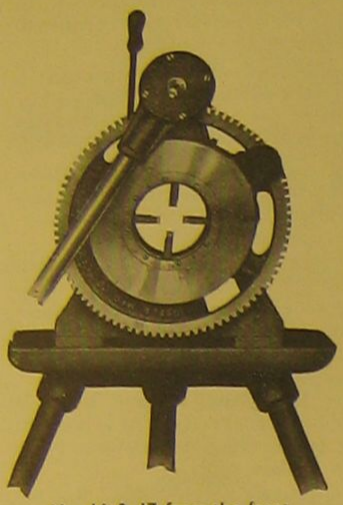
Equipment supplied at extra cost:—Auxiliary drive shaft, with telescopic action, for operating geared receding die stocks up to 4-inch capacity on No. 412 Power Boy and up to 12 ins. capacity on the No. 414, **Stand,** R.H. pipe or bolt dies, combined oil pan and tool rest, **reamer and holder, and nipple chuck.**

Dimensions		**Machine No. 412**	**No. 414**
Capacity for pipe	ins.	½ to 2	½ to 4
Number of speeds		1	2
Horse-power of motor		⅓	⅓
Size of machine, height × width × length	ins.	18½ × 16 × 30	24¾ × 20 × 47
Net weight, with motor	lbs.	152	380
Gross ,, ,, ,, for export	,,	217	665
Size of case for export	cu. ft.	7½	20

Power Boy with Petrol Engine Drive Nos. 412 G and 414 G.

The Nos. 412 and 414 machines can be supplied equipped with an engine operating for 10 hours on a gallon of petrol. The machine is just as portable as the electrically driven Power Boy and is invaluable where no electric supply is available.

Oster Light Screwing Machines (Made in U.S.A.) Nos. 15, 16 & 17



No. 16 & 17 from the front

These Machines meet the need for a convenient and portable machine for use in the general shop or on the job.

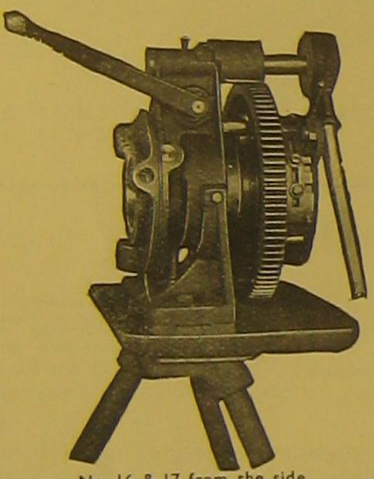
The dies are opened and closed by a small hand lever, and are adjustable for over or under size work.

The Pipe is automatically centred in the dies and held by means of guides, which are adjustable for all sizes within the range of the machine. The thread is started by a hand lever, a slight pressure on which will force the dies on to the pipe.

Equipment includes:—Ratchet handle for use when threading large pipe, crank handle for smaller sizes (crank handle only on No. 15), pipe vice, lever operating die head, and tripod stand.

The machines can be supplied as bench machines without tripod, if required.

Nos. 15 and 17 machines can be supplied with right or left-hand dies, the No. 16 machine being for right-hand dies only.

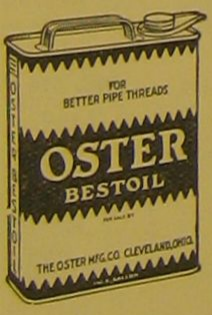


No. 16 & 17 from the side

Dimensions and Prices

Size of Machine ... No.		15	16	17
Pipe threading sizes, Normal Range	ins.	¼ to 2	2½ to 4	2½ to 6
Pipe Threading sizes, Extra Range	,,	—	1 to 2	1 to 2
Range for rods	,,	½ to 1¼	⅞ to 1⅝	1⅛ to 2
Shortest piece threaded without nipple holder ...	,,	6	9½	9½
No. of sets of dies, Regular Capacity		4	1	4
Extra sets of dies for lower range		—	1	2
Measurement, with tripod	ins.	20×15×14	35×24×23	36×25×25
Net weight ,, ,,	,,	130	240	400
,, ,, bench machine	,,	80	160	290

Oster Bestoil (Made in U.S.A.)



"Bestoil" is a high grade substitute for lard oil for use in threading pipe, etc.
The penetrating action of "Bestoil" results in correctly formed clean threads and long life to the dies. The high sulphur content remains the same at all times, and being held in perfect chemical combination it absorbs and throws off heat more rapidly than other types of cutting oil.

"Bestoil" does not congeal, is clean to use, has no disagreeable odour and although primarily a coolant has certain necessary lubricating properties.

Specially recommended for use with Reed Screwing Tackle, pages 207—228.

Prices, per American Gallon

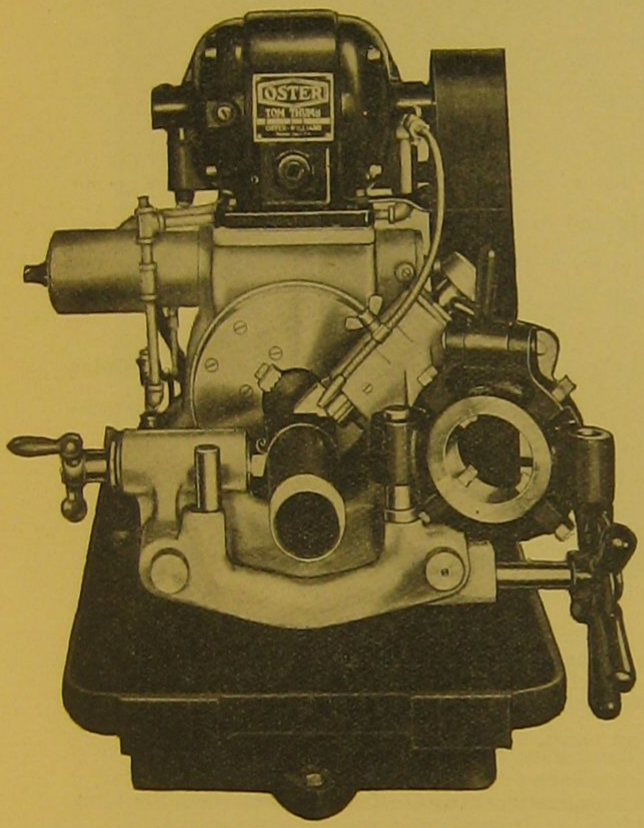
1 gallon cans	7/6	per gallon	(American)
2 ,, cans	6/9	,, ,,	,,
5 ,, drums	6/3	,, ,,	,,
30 ,, drums	5/6	,, ,,	,,
55 ,, drums	5/–	,, ,,	

PIPE & BOLT THREADING MACHINES

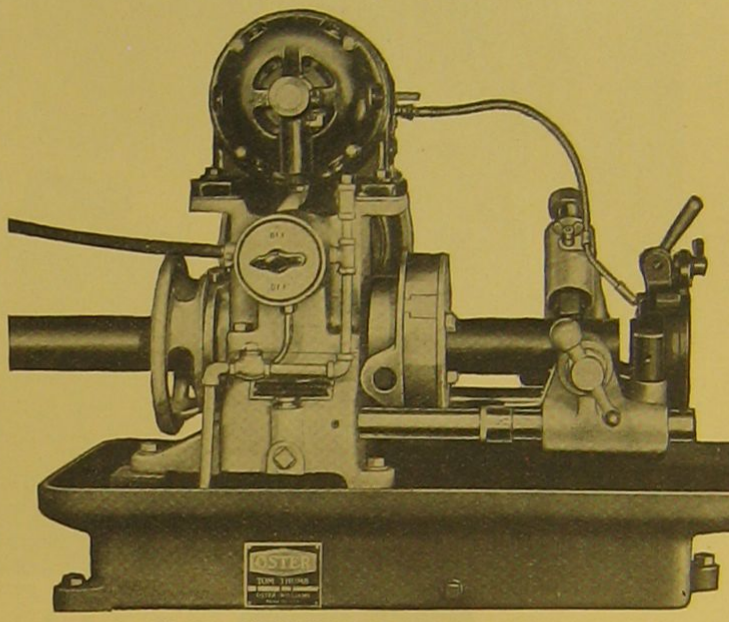
Oster "Tom Thumb" Portable Screwing Machines (Made in U.S.A.)

No. 512 with Rotary Spindle and Adjustable Die Head

No. 521, Bolt Threader, with Rotary Adjustable Die Head



No. 512 OD. PIPE THREADING MACHINE, END VIEW SHOWING GUIDES, DIE HEAD AND CUT-OFF

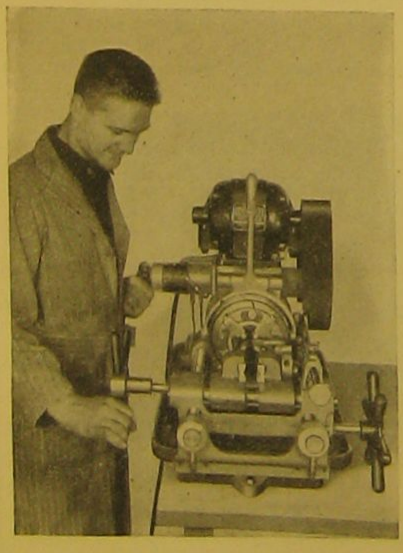


No. 512 OD. PIPE THREADNG MACHINE, SHOWING MOTOR, CONTROL AND OIL PUMP

These very small and compact units, covering sizes in everyday use, have complete stationary machine advantages combined with portability.

Where a large amount of screwing is to be done the "Tom Thumb" is a real labour saver and production tool because it is a self-contained unit which threads, cuts off and reams the piece being operated upon. Timken roller bearings are fitted throughout.

Among the other distinctive features of the "Tom Thumb" are:—



No. 521. "TOM THUMB" BOLT THREADING MACHINE

No. 512 Pipe Threading Machine:—

Universal Motor, variable speed, for operation from light socket.
Drive is from motor by double V belt, eliminating noisy gearing.
Rack and Pinion Feed to Dies.
Ample Base with wide flaring sides, containing reservoir, retains chips and cutting oil.
Equipment included:—Motor of standard voltage, switch, flexible cord, oil-pump, cut-off, reaming tools and high speed steel dies.

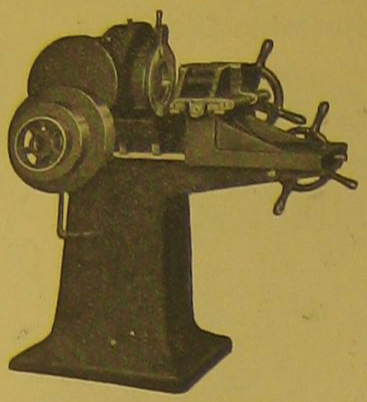
No. 521 Bolt Threading Machine:—

Universal Motor, variable speed, for operation from light socket.
Drive is from motor by double V belt, eliminating noisy gearing.
Outboard Bearings which support the studs carrying the vice.
Rack and Pinion Feed to Vice Carriage—thread started without effort.
Hollow Spindle which enables threads of any length to be cut.
Ample Base, with wide flaring sides, containing reservoir, retains chips and cutting oil.
Equipment included:—Motor of standard voltage, switch, flexible cord, oil-pump. Dies are not included, but are supplied to requirements, at extra cost.

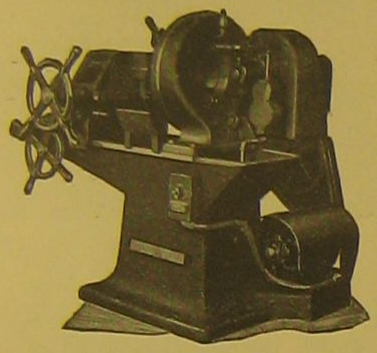
"Tom Thumb" Machine No.	521 (Bolt Threader)	512 OD (Opening Die)
Capacity for Pipe ... ... ins.	$\frac{1}{4}$ to $1\frac{1}{4}$	$\frac{1}{4}$ to 2
" " Bolts ... ... "	$\frac{3}{16}$ to $1\frac{1}{4}$	$\frac{1}{4}$ to $1\frac{1}{2}$
No. of Dies per Set	4	4
No. of Sets of Dies to cover regular range	1 Set for each size	3
Horse-power required	$\frac{1}{2}$	$\frac{1}{2}$
Size of Machine, height × width × length ins.	$25\frac{1}{2} \times 21\frac{1}{2} \times 34$	$24 \times 21 \times 30\frac{3}{4}$
Net Weight with Motor ... ... lbs.	375	350

Oster Pipe Screwing Machines
Nos. 302, 304, 316 and 308

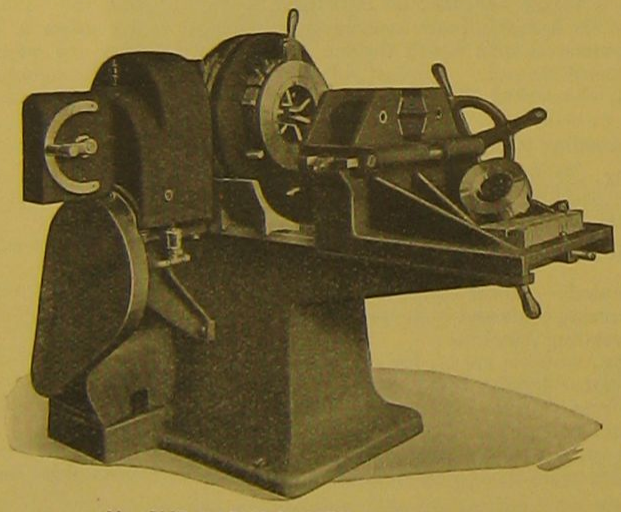
(Made in U.S.A.)



No. 304A MACHINE



No. 316B MACHINE, REAR VIEW



No. 316B MACHINE, WITH MOTOR DRIVE

These Machines can be used for all pipe-threading jobs, and the head is adjustable for over and under size pipe, whilst, with special dies, they may be used for screwing bolts.

The lever-controlled die head is released and re-set easily and quickly, whilst the open-type vice grips and centres the work by a single turn of the hand wheel. The vice will also accommodate bent pipe, without difficulty.

For threading close and thread-to-thread nipples special two-piece nipple holders can be supplied for attaching to the front of the vice jaws.

One set of dies will thread two sizes of pipe ; they are made of high-grade carbon steel, carefully tempered, and can be rapidly changed from one size to another.

The automatic die release opens the dies at any predetermined point by a gradual movement which gives a perfect finish.

The automatic cutting-off apparatus takes the form of a lathe tool designed to cut without leaving a burr.

Adjustable guides, for centring the work, are incorporated in the die head.

A fountain flood oil system with geared pump provides ample lubrication for the dies.

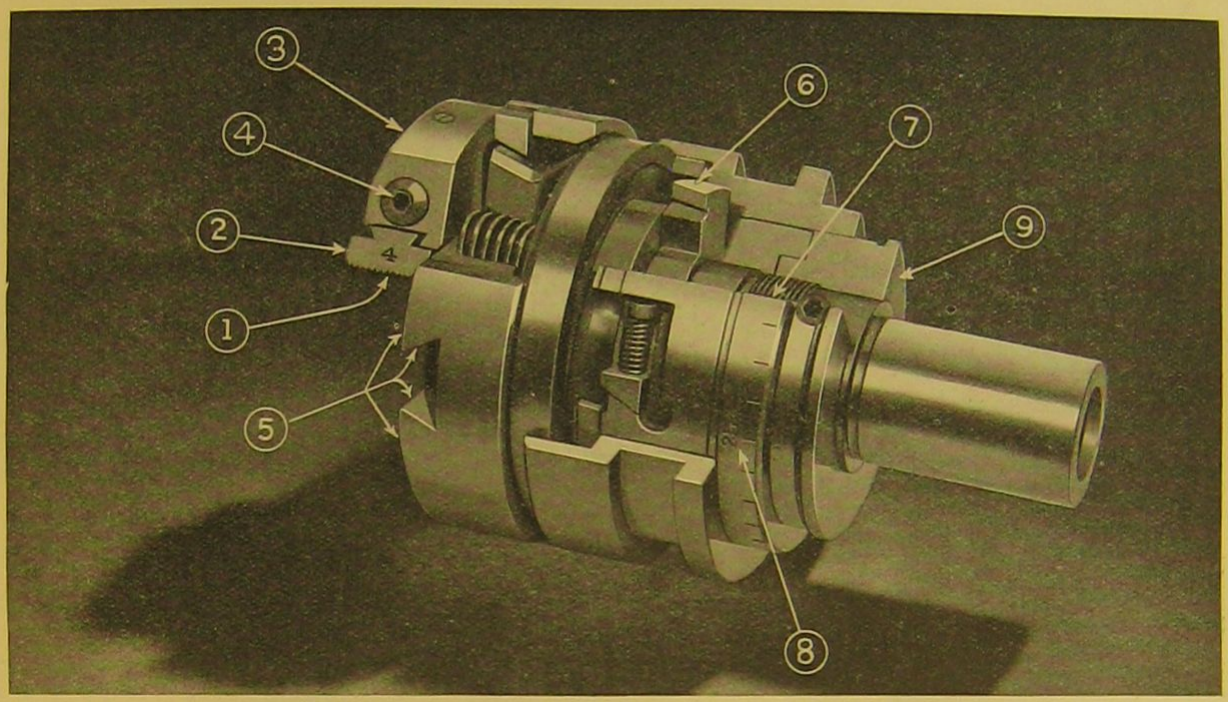
Machines Nos. 302A, 304A, 316A, and 308A are arranged for belt drive.

Machines Nos. 302B, 304B, 316B, and 308B are similar in all respects to the "A" machines, except that they are arranged for direct motor drive.

Machine No.	302	304	316	308
Threads and cuts off pipe, normal range ins.	¼ to 2	1 to 4	1¼ to 6	2½ to 8
Threads and cuts off pipe, special range ,, (Auxiliary jaws required on small pipe sizes)	⅛ to 2	½ to 4	1 to 6	1½ to 8
Threads bolts (Auxiliary jaws required on small bolt sizes) ... ... ins.	½ to 1½	¾ to 2	1 to 2	1½ to 3
Cone pulleys, diameter and face ... ,,	8 & 12×2½	8, 12, & 16×3	8, 12, & 16×3½	11, 14, & 17×4
Countershaft F. & L. Pulley, diameter and face ... ... ,,	12×3	14×3½	16×4	20×4½
Countershaft speed ... ... r.p.m.	140	225	120	82½
Horse-power recommended	¾	1½	1½	3
Floor space required ... ... ins.	36×29	42×37	54×49	70×90
Net Weight, Approx. ... ... lbs.	800	1350	2000	3900

AUTOMATIC SELF-OPENING DIE HEADS

J. & L. Tangent Type Die Heads (Made in U.S.A.)



Distinctive Features of J. & L. Tangent Die Heads :—

1. **Hardened and ground throughout.** The die body is not only ground—**it is lapped on the face and in the dovetail slots.**

2. **The Universal Chaser Holders are accurate fitting,** have wide spread bearing with minimum overhang and furnish utmost rigidity to the chasers. Only one set of these holders is required for any right hand thread within the rated die capacity, regardless of diameter, or pitch. This eliminates the need of numerous sets of Holders and the resulting expense and annoyance.

3. **Chasers extend beyond face of holders,** permitting close-to-shoulder threading throughout the life of the chasers.

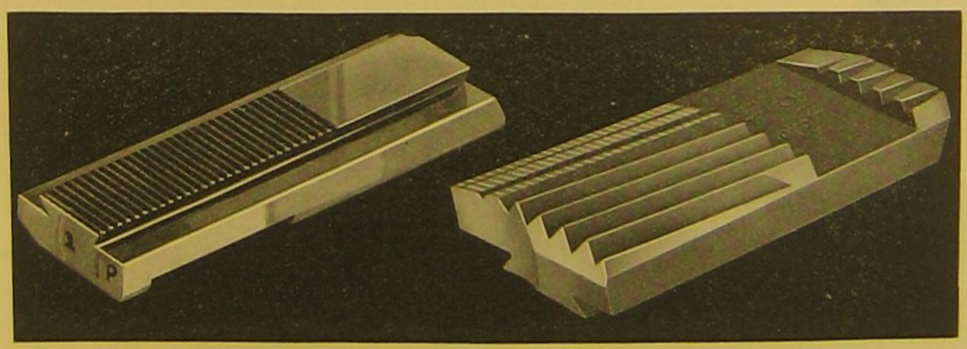
4. **A single screw secures, or releases, the chaser.**

5. **The locking ring provides four locking surfaces** for longer die life. This ring is solidly supported by the Drive Ring and the Adjusting Nut.

6. **The adjusting thread is ground.**

7. **Widespread calibrations permit accurate size adjustment.**

8. **Adjusting nut for controlling pitch diameter.** Backing off this nut two or three turns permits removal of Chaser Holders.



Tangent Type Chasers

J & L Tangent Chasers are ground in the thread at the exact helix angle for the diameter and pitch they are to cut. This makes it possible to position them close to the face of the die, resulting in minimum overhang. It also makes possible the J & L Universal Chaser Holder.

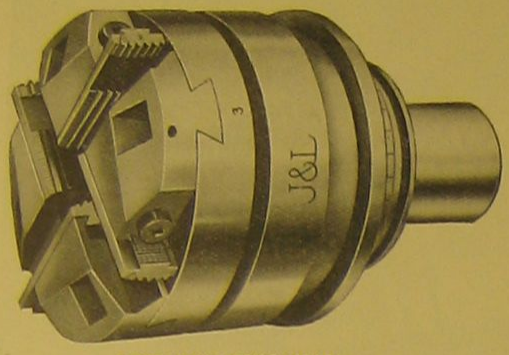
All Chasers are located by serrations on the back engaging corresponding serrations in the Chaser Holders. This provides a definite locating point for re-sharpening, measuring and setting.

The corresponding serrations on the chamfer give a freer action on the cutting edge without effecting the required bearing on the threads which follow.

Chasers are interchangeable in Revolving and Stationary Type Dies of the same capacity.

All J & L Tangent Ground Thread Chasers are guaranteed to hold lead correct within .001 inch per inch.

J. & L. Tangent Type Die Heads (Made in U.S.A.)



REVOLVING TYPE HEAD

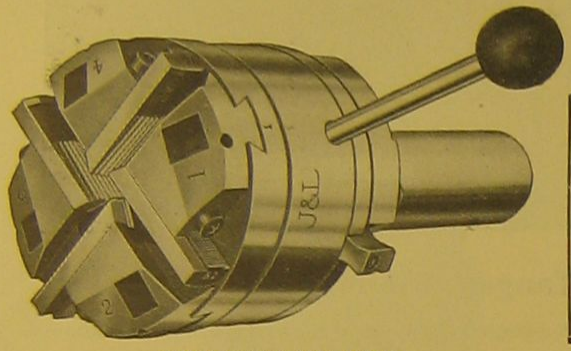
These Heads have been regularly supplied only with American Thread Chasers in capacites listed.

Whitworth Standard Thread Chasers can now be furnished in the range of sizes shown, at standard prices.

Revolving Type Head

Die Head No.	Code Word	Capacity American Std. Coarse Threads Ins.	Capacity Whit. Std. Threads Ins.	Max. Thread Diam. Ins.	Max. Thread Length	Price Head only without Chasers	H.S.S. Chasers per Set
20	*Tangent*	No. 6 (32) to $\frac{1}{16}$	$\frac{1}{16}$ to $\frac{1}{8}$	$\frac{1}{8}$	Any	£26 10 0	£2 18 6
21	*Betel*	$\frac{1}{16}$,, $\frac{1}{4}$	$\frac{1}{16}$,, $\frac{1}{4}$	$\frac{1}{4}$	Any	28 15 0	3 3 9
*21	*Betelas*	$\frac{1}{4}$,, 1	$\frac{1}{4}$,, $\frac{3}{4}$	$\frac{3}{4}$, 1	Any, 1"	28 15 0	3 3 9
22	*Sand*	$\frac{1}{4}$,, $1\frac{1}{4}$	$\frac{1}{4}$,, $1\frac{1}{4}$	$1\frac{1}{4}$	Any	46 15 0	4 15 9
23	*Seal*	$1\frac{1}{4}$,, $1\frac{1}{2}$	$1\frac{1}{4}$,, $1\frac{1}{2}$	$1\frac{1}{2}$	Any	46 15 0	4 15 9
24	*Seed*	$1\frac{1}{4}$,, $1\frac{1}{2}$	$1\frac{1}{8}$,, $1\frac{1}{2}$	$1\frac{1}{2}$	Any	66 0 0	5 6 3
†25	*Star*	$1\frac{1}{8}$,, 2	—	$1\frac{3}{4}$, 2	Any, $3\frac{1}{4}$"	66 0 0	5 6 3

*Standard No. 21 Head with 1-inch Chaser Holder.
†Supplied with American Standard Fine Threads within the capacity of the Head



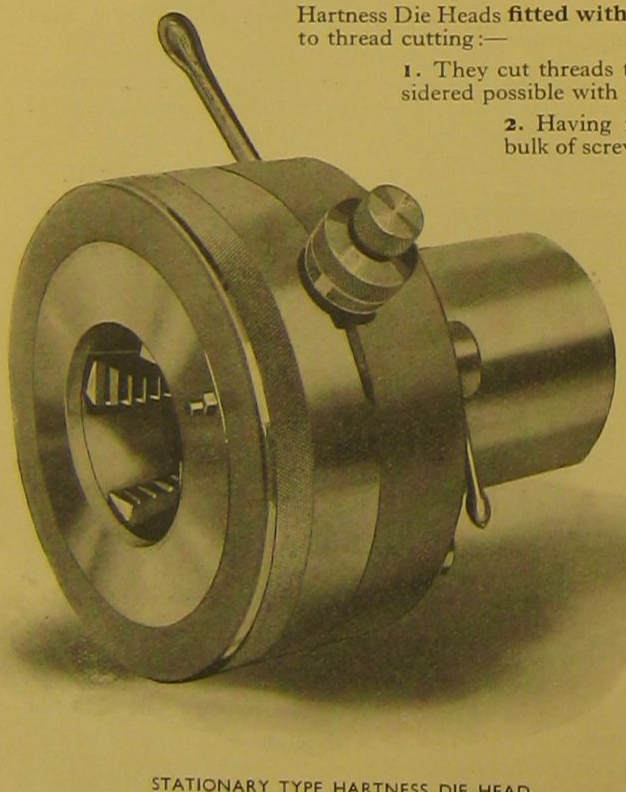
STATIONARY TYPE HEAD

Stationary Type Head

Die Head No.	Code Word	Capacity American Std. Coarse Threads Ins.	Capacity Whit. Std. Threads Ins.	Length Overall Ins.	Diam. Open Ins.	Price Head only without Chasers	H.S.S. Chasers per Set
20S	*Tangents*	No. 6 (32) to $\frac{1}{16}$	$\frac{1}{16}$ to $\frac{1}{8}$	$7\frac{1}{4}$	$2\frac{15}{16}$	£31 5 0	£2 18 6
21S	*Bean*	$\frac{1}{16}$,, $\frac{1}{4}$	$\frac{1}{16}$,, $\frac{1}{4}$	8	$3\frac{15}{16}$	34 15 0	3 3 9
*21S	*Beanos*	$\frac{1}{4}$,, 1	$\frac{1}{4}$,, $\frac{3}{4}$	8	$3\frac{15}{16}$	34 15 0	3 3 9
22S	*Sands*	$\frac{1}{4}$,, $1\frac{1}{4}$	$\frac{1}{4}$,, $1\frac{1}{4}$	9	$4\frac{1}{2}$	52 15 0	4 15 9
23S	*Seals*	$1\frac{1}{4}$,, $1\frac{1}{2}$	$1\frac{1}{4}$,, $1\frac{1}{2}$	9	$5\frac{7}{16}$	52 15 0	4 15 9
24S	*Seeds*	$1\frac{1}{4}$,, $1\frac{1}{2}$	$1\frac{1}{8}$,, $1\frac{1}{2}$	$9\frac{3}{4}$	$5\frac{1}{2}$	72 0 0	5 6 3
25S	*Stars*	$1\frac{1}{8}$,, 2	—	$9\frac{3}{4}$	$6\frac{1}{16}$	72 0 0	5 6 3

*Standard No. 21S Head with 1-inch Chaser Holder.

Hartness High Speed Series Die Heads (Made in U.S.A.)



STATIONARY TYPE HARTNESS DIE HEAD

Hartness Die Heads **fitted with ground and lapped thread** chasers make important contribution to thread cutting:—

1. They cut threads to a degree of accuracy of diameter, lead and form not before considered possible with a die head.

2. Having made accurate lead and form possible they allow, on the great bulk of screws a pitch diameter tolerance sufficiently large to greatly reduce cost.

3. High speed steel chasers, ground after hardening, may be successfully run at high speeds.

Revolving Type

Die Head No.	Code Word	Capacity Whit. Std. Threads Ins.	Max. Thread Diam. Ins.	Max. Thread Length Ins.	Price Head only without Chasers	H.S.S. Chasers per Set
1R	*Cadency*	$\frac{3}{16}$,, $\frac{9}{16}$*	$\frac{5}{8}$	Any	£14 5 0	£1 8 0
2R	*Hansom*	$\frac{1}{4}$,, $\frac{7}{8}$*	1	Any	16 13 6	1 17 9

Stationary Type

Die Head No.	Code Word	Capacity Whit. Std. Threads Ins.	Length Overall Ins.	Diam. Ins.	Price Head only without Chasers	H.S.S. Chasers per Set
1H	*Cadence*	$\frac{3}{16}$ to $\frac{9}{16}$*	$7\frac{9}{16}$	3	£14 5 0	£1 8 0
2H	*Gentian*	$\frac{1}{4}$,, $\frac{7}{8}$*	$8\frac{3}{8}$	$3\frac{7}{16}$	16 13 6	1 17 9
4H	*Fafir*	$\frac{5}{16}$,, $1\frac{1}{8}$	$8\frac{1}{2}$	$4\frac{7}{8}$	22 11 6	2 12 9
7H	*Nugget*	$\frac{3}{4}$,, 2	8	$6\frac{3}{8}$	30 18 0	3 3 6

*Nos. 1H & 1R to $\frac{5}{8}$" B.S.F. Nos. 2H & 2R to 1" B.S.F.

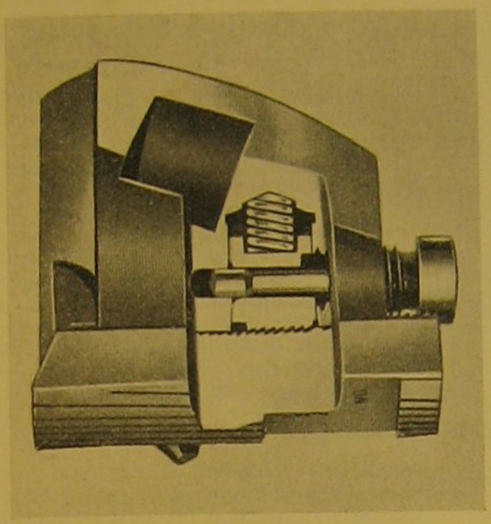


FIGURE B-1
To move Chasers, turn Screw out a few turns, and the Thrust Pin and Chaser will disengage

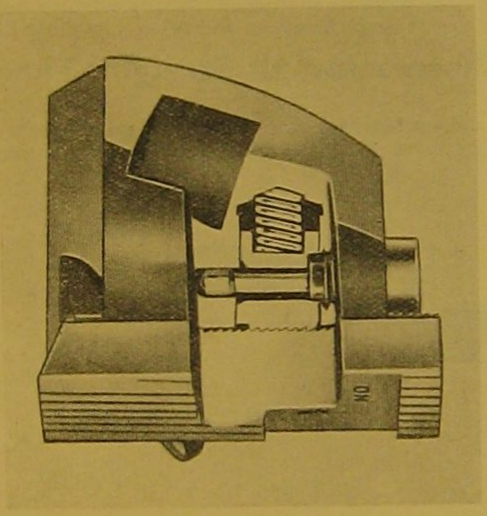


FIGURE B-2
To secure, slip Chaser in dovetail, turn Screw in and the Pin and Chaser Serrations will engage

J. & L. Tangent Type Die Heads. Chaser Holders

The Chaser Holders are each fitted with a Thrust Pin, Spring and Screw, as shown in Figures B-1 and B-2.

One end of the Thrust Pin Screw is equipped with a 45° angle and when turned outward a few turns, this angle engages a 45° chamfer in the Thrust Pin, forcing it downward and compressing the spring. This permits sliding the Chaser into its proper position.

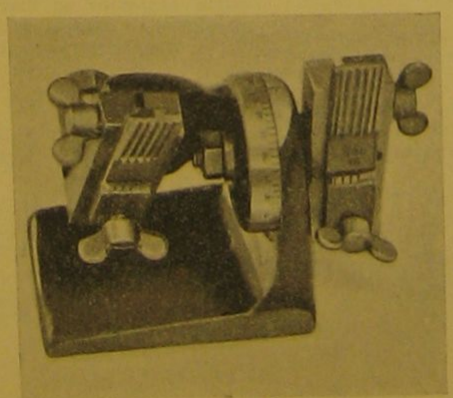
Notice that the centre portion of the Thrust Pin Screw is smaller than both ends and when the Screw is turned in a certain distance the Thrust Pin and Spring are released, forcing the Pin up into the Chaser. The Screw should be turned in against the head because the last few turns permit a turned diameter, adjacent to the thread, to enter a counterbore in the Thrust Pin. The serrations on the Thrust Pin and Chaser are then locked in engagement.

The sturdy construction, large bearing area and accurate fitting makes replacement of chaser holders unnecessary, but in the event of accident the die-head should be returned so that the new chaser holder can be accurately fitted to the dovetails which are ground to very close tolerance and lapped to final fit.

Chaser Holders are universal and each die-head is equipped with Right Hand Chaser Holders, unless otherwise specified, and covers the following threading capacities regardless of diameter and pitch.

Markings on Chaser Holders	$\frac{9}{16}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Threading Capacity, American Standard Coarse Thread, ins.	No. 6 to $\frac{9}{16}$	$\frac{5}{16}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 1	$\frac{3}{4}$ to $1\frac{1}{4}$	$1\frac{1}{8}$ to $1\frac{1}{4}$	$1\frac{3}{8}$ to $1\frac{3}{4}$	$1\frac{5}{8}$ to 2
Used in Die Head No. ...	20	21	21	22 or 23	23 or 22	24 or 25	25 or 24

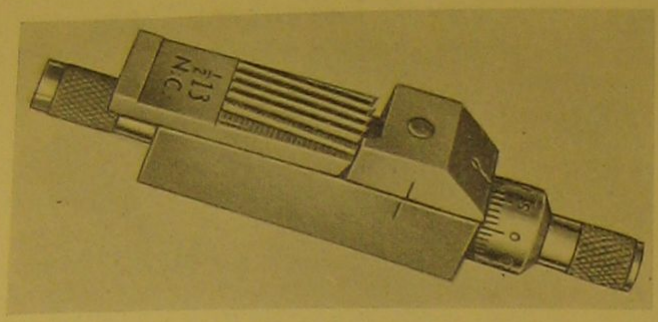
J. & L. Chaser Sharpening Fixture for Tangent Type Chasers



The J & L Tangent Chaser lends itself to easy sharpening of both cutting and non-cutting teeth. The simple Sharpening Fixture shown at left is universal for squaring the end of the Chaser, also for grinding the top rake. See Chaser Sharpening Instructions, on following page.

The Squaring Jig is to the right and the Rake Jig to the left. The same Jig Bodies furnished with this fixture may be used on the Bench Type Chaser Grinder. This fixture can be used on surface or cutter grinding machines.

SHARPENING OF TANGENT TYPE CHASERS



J. & L. Micrometer Measuring Gauge for Tangent Type Chasers

Chasers ground with the aid of this Gauge will produce repeatedly the same standards of quality and production. The Chasers are positioned in this Gauge exactly the same as they are held in the Chaser Holders in the Die.

In grinding Chasers the bearing of the cutting edge is important. If this edge is too low the bearing will be light and cause chatter, side trimming, taper and lead error. If ground too high a heavy bearing results, causing hard starting, tearing, excessive breakage, and low production. The teeth immediately following those which do the cutting are purposely ground too high to cut—they act to control the lead.

To Sharpen Chasers

Place Chaser in Jig. Adjust stop "A" to permit end of Chaser to slightly overhang end of Jig. Then tighten Binding Screw "B" to secure Chaser.

After one Chaser is sharpened correctly the remaining Chasers in that particular set should all be brought up against Stop "A." If the position of this stop is not changed while grinding any one set of Chasers they will all be ground to equal length, except for any wear of the grinding wheel. The Micrometer Adjusting Screw "C" permits the necessary adjustment for accurately controlling the length of all Chasers.

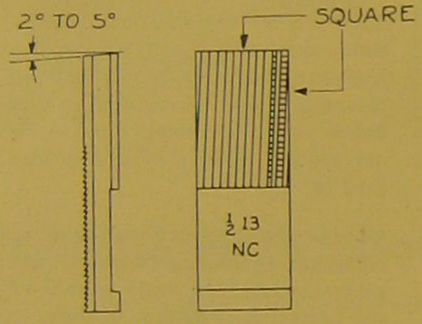
Keep Chasers Sharp

Properly sharpened Chasers produce better threads, reduce Chaser breakage and other threading ills.

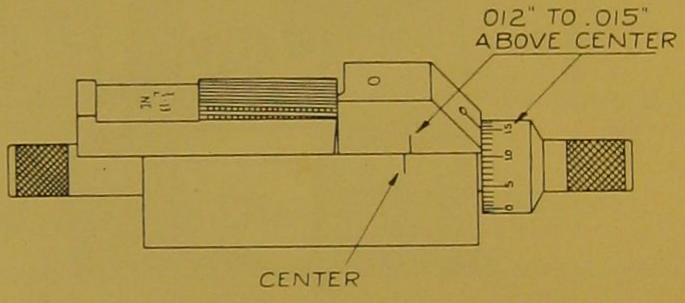
Instructions for Sharpening Chasers for all Straight Threading.

To Grind Bearings

First—Set Jig to grind Chasers as shown in diagram on right

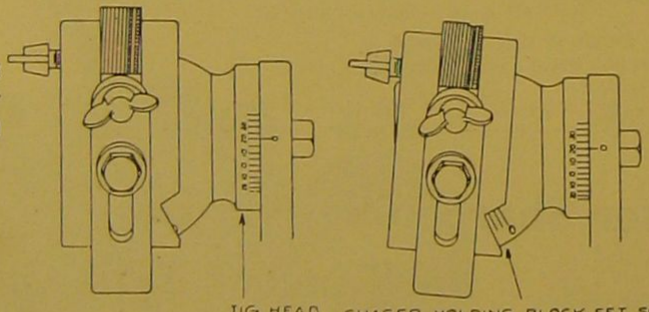


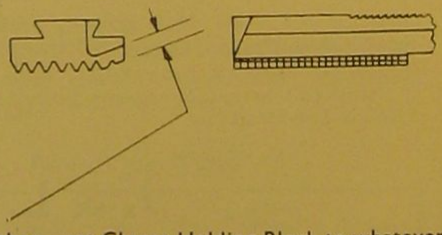
and—unless otherwise instructed grind square across until chaser measures ·012 in. to ·015 in. above centre in gauge.



To Grind Top Rake

First—Set "Jig Head" for the desired top rake

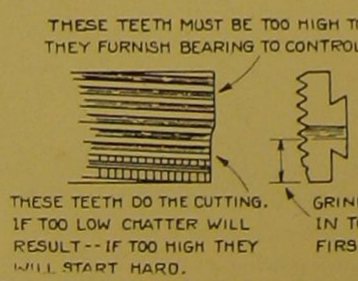




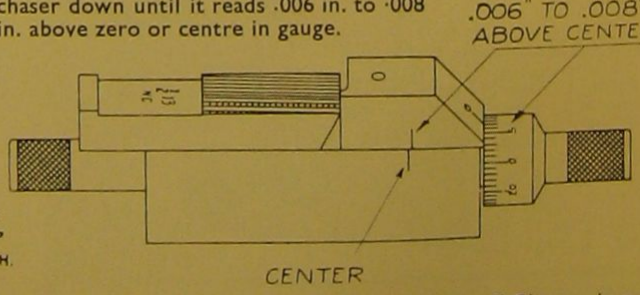
then—set Chaser Holding Block to whatever angle necessary so that the land narrows parallel with chamfer as shown. (This angle varies with both rake and chamfer angles.)

After Setting Jig

First—As shown grind top rake until it matches up with first full tooth


THESE TEETH MUST BE TOO HIGH TO CUT. THEY FURNISH BEARING TO CONTROL THE LEAD.
THESE TEETH DO THE CUTTING. IF TOO LOW CHATTER WILL RESULT -- IF TOO HIGH THEY WILL START HARD.
GRIND TOP RAKE IN TO CLEAN UP FIRST FULL TOOTH.

and—unless otherwise instructed, grind chaser down until it reads ·006 in. to ·008 in. above zero or centre in gauge.



IMPORTANT: Because the helix angle is accurately ground into the Chasers it is, of course, necessary that all Chasers in a set be kept the same length.

Section 5

Abrasives

Wheels, Papers, Cloth and Mountings

Carborundum and Aloxite Grinding Wheels

Grains and Powders

Diamond Tools

Wheel Dressers

Sharpening Stones

Oilstones

Valve Grinding Compound

Durex Abrasive Cloths and Papers

Bench and Floor Grinders and Polishers

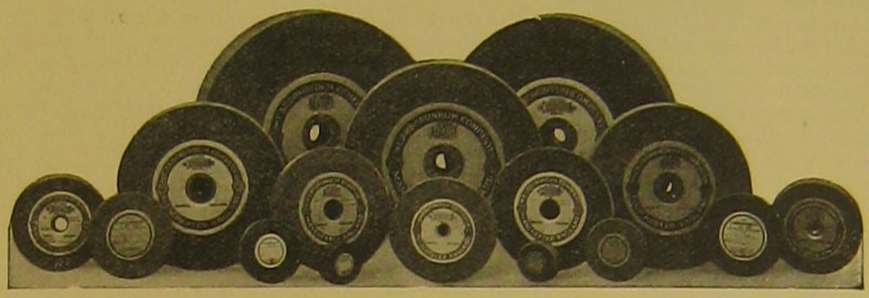
Linisher Bands

The SPARK METHOD of DETERMINING GRADES of IRON and STEEL, and other useful information for Engineers is at the end of this catalogue.

THE CARBORUNDUM CO., LTD.

Carborundum and Aloxite Grinding Wheels

(British Made)



The Characteristics of Carborundum and Aloxite Grinding Wheels

There are several factors which have an important bearing upon the ultimate characteristics of grinding wheels. These characteristics are determined principally by the abrasive material used, the methods employed in the manufacture of the wheels, and the nature and proportions of the bond. There are two types of abrasives which are the most extensively used. These are the silicon carbide abrasive (Carborundum) and the aluminous abrasive (Aloxite).

Carborundum differs materially from Aloxite. In the first place the grains of Carborundum are considerably harder than those of Aloxite and are also more brittle in their structure. The grains of Aloxite, while not so hard, are tougher and therefore do not fracture so readily.

Because of the difference in the characteristics of the two abrasives, it has been the general practice to recommend **Carborundum for the grinding of all materials of low tensile strength, and Aloxite for work on materials of high tensile strength.** This rule of grinding procedure is, of course, given in a very general sense. However, for cast iron and materials of low tensile strength such as brass, bronze, aluminium, copper, etc., and for the grinding of such non-metallic materials as rubber, pearl, marble, and stone, Carborundum is recommended. For the grinding of steels and their alloys, for malleables and the majority of tool-room grinding operations, Aloxite is used.

The size of the abrasive grain used in the making of a grinding wheel is another factor to be considered. The size of the grain, of course, determines the grit of the wheel or its degree of coarseness or fineness. The grain size is under definite standard controls and is indicated by standard numbers. The finish required in any grinding operation is often the controlling factor in the selection of the grit. Where finish is not important, the amount of material which may be economically removed in a given time must be considered in the grit selection.

Many other equally important factors enter into the selection of a grinding wheel, so that where possible the assistance of our experts should be sought.

Carborundum and Aloxite Straight Wheels (British Made)

Vitrified, Silicate, "Redmanol," Shellac and Rubber Bonds

Diameter.—Wheels with diameters less than 1 inch take the list price of a 1-inch wheel.
Wheels with diameters represented by odd inches or fractional parts of inches, intermediate to diameters shown in list, take the list price of the next larger diameter.

Thickness.—Wheels thinner than one-quarter of an inch take the list price of a wheel one-quarter inch thick.
Wheels with thicknesses intermediate to those shown in list take the list price of the next thicker wheel.

Arbor Holes.—Wheels having holes 6 inches diameter and over, if dovetail recessed on one or both sides not exceeding ¼ inch at the deepest point, full thickness at edge of hole, should be considered, for hole allowance, as plain wheels.
No allowance for holes is made on straight wheels which are countersunk on one or both sides, or on wheels with recessed or raised dovetails, as the additional work involved more than offsets any saving in materials due to holes.
If the diameter of a hole is represented by odd inches or fractional parts of inches not shown in list, the next smaller diameter is taken as representing the diameter of a wheel for which allowance is made, the thickness of such a wheel to be the same as the wheel from list of which the deduction is made.
Straight wheels with raised dovetails are figured specially, according to shape.

General Price List. Subject to Discount

Of Vitrified, Silicate, "Redmanol", Shellac, Rubber Wheels.

Diam. in Ins.	Thickness of Wheels in Inches																		
	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4
1	1/6	1/9	2/-	2/3	2/6	2/9	3/-	3/3	3/6	4/-	4/6	5/-	5/6	6/-	6/6	7/-	7/6	8/-	8/6	9/-
1 1/4	2/-	2/-	2/3	2/6	2/9	3/-	3/3	3/6	4/-	4/6	5/-	5/6	6/-	6/6	7/3	8/-	8/6	9/-	9/6	10/-
2	2/-	2/6	2/9	3/3	3/6	3/9	4/3	4/6	5/-	5/9	6/3	7/-	7/6	8/-	8/9	9/3	10/-	10/6	11/-	11/9
2 1/2	2/3	2/9	3/3	3/9	4/-	4/3	4/9	5/3	5/9	6/3	7/-	7/9	8/6	9/-	9/9	10/6	11/3	11/9	12/6	13/3
3	2/6	3/3	3/6	4/-	4/3	4/9	5/3	5/9	6/3	7/3	8/-	8/9	9/6	10/3	11/-	11/9	12/6	13/3	14/-	14/9
3 1/2	3/-	3/6	4/-	4/6	5/-	5/6	6/-	6/6	7/3	8/-	8/9	9/6	10/6	11/3	12/-	13/-	14/-	14/9	15/6	16/6
4	3/9	4/3	4/9	5/3	5/9	6/3	7/-	7/6	8/6	9/6	10/6	11/9	12/9	14/-	15/-	16/-	17/-	18/-	19/3	20/-
4 1/2	4/6	5/-	5/6	6/3	6/9	7/3	8/-	8/9	10/-	11/-	12/6	13/9	15/-	16/3	17/6	18/9	20/-	21/-	22/-	24/-
5	5/3	5/9	6/3	7/3	8/-	8/6	9/3	10/-	11/6	12/9	14/3	15/6	17/-	18/6	20/-	21/6	23/-	24/-	25/6	27/-
6	6/3	7/3	8/-	9/-	10/-	11/-	11/9	12/9	14/9	16/6	18/6	20/-	22/-	24/-	26/-	28/-	30/-	32/-	34/-	36/-
7	7/6	8/9	10/-	11/-	12/3	13/6	14/9	16/3	18/6	21/-	23/6	26/-	28/-	31/-	33/6	36/-	38/-	41/-	43/-	46/-
8	8/9	10/3	11/9	13/3	14/9	16/6	18/-	19/6	23/-	26/-	29/-	32/-	35/-	39/-	42/-	45/-	48/-	51/6	55/-	58/-
9	10/-	11/9	13/9	15/6	17/6	19/6	21/-	23/-	27/-	31/6	36/-	40/-	44/-	48/-	51/6	56/-	61/-	66/-	70/-	75/-
10	11/3	13/6	16/3	18/6	21/-	23/-	26/-	28/-	33/-	38/-	44/-	49/-	55/-	60/-	66/-	71/-	76/-	82/-	86/-	91/-
12	14/-	17/3	19/3	23/-	26/-	29/-	32/6	36/-	43/-	49/-	56/-	62/-	70/-	77/-	85/-	92/-	100/-	107/-	114/-	122/-
14	17/-	21/-	25/-	29/-	34/-	38/6	43/-	48/-	57/-	66/-	75/-	85/-	95/-	105/-	115/-	125/-	135/-	145/-	155/-	165/-
16	21/-	26/6	32/	38/-	43/6	49/-	55/6	62/-	74/-	87/-	99/-	111/-	124/-	136/-	148/-	160/-	173/-	185/-	197/-	209/-
18	—	33/-	40/-	47/-	55/-	62/-	69/-	76/-	92/-	108/-	123/-	139/-	154/-	168/-	183/-	198/-	212/-	227/-	241/-	256/-
20	—	40/-	49/-	58/-	67/-	76/-	85/-	94/-	113/-	131/-	150/-	168/-	186/-	203/-	221/-	239/-	256/-	274/-	292/-	309/-
22	—	51/6	62/-	73/-	84/-	95/-	106/-	117/-	139/-	161/-	183/-	206/-	228/-	250/-	272/-	294/-	315/-	337/-	360/-	381/-
24	—	—	81/-	95/-	105/-	117/-	129/-	141/-	165/-	191/-	219/-	244/-	272/-	297/-	325/-	350/-	375/-	403/-	428/-	453/-
26	—	—	—	116/-	130/-	143/-	154/-	165/-	187/-	219/-	250/-	281/-	315/-	347/-	381/-	416/-	447/-	481/-	516/-	550/-
28	—	—	—	138/-	154/-	176/-	186/-	196/-	216/-	259/-	303/-	347/-	384/-	425/-	462/-	500/-	534/-	572/-	606/-	641/-
30	—	—	—	165/-	181/-	198/-	214/-	228/-	244/-	287/-	334/-	378/-	422/-	465/-	512/-	556/-	600/-	644/-	690/-	734/-
32	—	—	—	—	—	—	—	264/-	299/-	334/-	387/-	441/-	494/-	547/-	600/-	656/-	703/-	750/-	797/-	844/-
34	—	—	—	—	—	—	—	304/-	344/-	384/-	447/-	506/-	569/-	628/-	690/-	750/-	800/-	853/-	903/-	953/-
36	—	—	—	—	—	—	—	350/-	397/-	444/-	512/-	578/-	647/-	716/-	775/-	831/-	891/-	947/-	1006/-	1062/-
38	—	—	—	—	—	—	—	—	—	519/-	584/-	650/-	716/-	781/-	847/-	912/-	975/-	1041/-	1106/-	1172/-
40	—	—	—	—	—	—	—	—	—	578/-	650/-	722/-	794/-	866/-	937/-	1009/-	1081/-	1153/-	1225/-	1297/-
42	—	—	—	—	—	—	—	—	—	644/-	722/-	800/-	878/-	956/-	1037/-	1116/-	1197/-	1278/-	1356/-	1437/-

Note.—Prices above and to the right of the thick line apply to Wheels in all bonds. Prices below and to the left of the thick dividing line apply only to Wheels in "Redmanol," Rubber and Shellac bonds.

Prices for Wheels larger than 42 ins. diam. by 4 ins. wide, on Application.

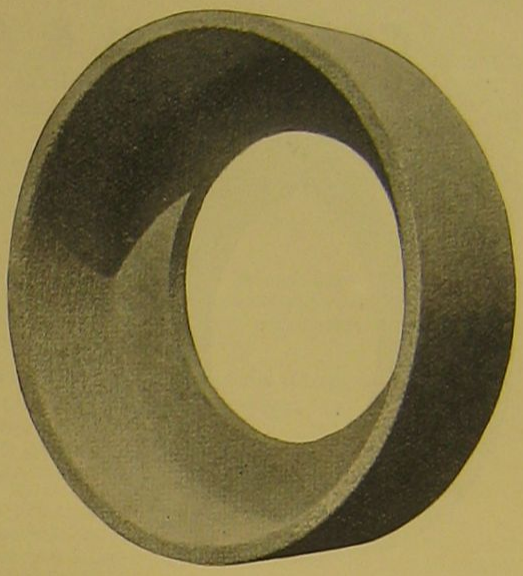
Hole Allowances

List of allowances on Plain Wheels or Recessed on Sides, not exceeding ¼ in., having holes 6 ins. diameter or over.

Diam. in Inches	Thickness of Wheels in Inches															
	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4
6	1/9	2/-	2/3	2/3	2/6	3/-	3/6	4/-	4/-	4/6	5/-	5/-	5/6	6/-	6/6	7/-	7/-
7	2/3	2/6	2/9	3/-	3/-	3/6	4/-	4/6	5/-	5/6	6/-	6/6	7/-	7/6	8/-	8/6	9/-
8	2/9	3/-	3/3	3/6	4/-	4/6	5/-	6/-	6/6	7/-	8/-	8/6	9/-	10/-	10/6	11/-	12/-
9	3/-	3/6	4/-	4/3	4/6	5/6	6/6	7/-	8/-	9/-	9/6	10/6	11/6	12/-	13/-	14/-	15/-
10	7/6	8/6	9/3	10/6	11/-	13/-	15/-	17/-	19/6	21/6	23/6	26/-	28/-	30/-	32/-	34/-	36/6
12	9/3	10/6	11/6	13/-	14/6	17/-	19/6	22/-	25/-	28/-	31/-	34/-	37/-	40/-	43/-	46/-	49/-
14	11/6	13/6	15/6	17/6	19/6	23/-	26/6	30/-	34/-	38/-	42/-	46/-	50/-	54/-	58/-	62/-	66/-
16	15/3	17/6	19/6	22/-	25/-	30/-	35/-	40/-	45/-	50/-	55/-	59/-	64/-	69/-	74/-	79/-	84/-
18	18/9	22/-	25/-	28/-	31/-	37/-	43/-	49/-	55/-	61/-	67/-	73/-	79/-	85/-	91/-	97/-	103/-
20	—	—	—	—	—	56/-	65/-	74/-	83/-	92/-	101/-	110/-	119/-	128/-	137/-	146/-	155/-
22	—	—	—	—	—	70/-	81/-	92/-	103/-	114/-	125/-	136/-	147/-	158/-	169/-	180/-	191/-
24	—	—	—	—	—	83/-	96/-	109/-	122/-	136/-	149/-	162/-	175/-	189/-	202/-	215/-	228/-
26	—	—	—	—	—	93/-	109/-	125/-	141/-	157/-	174/-	190/-	207/-	223/-	240/-	257/-	274/-
28	—	—	—	—	—	108/-	127/-	146/-	166/-	185/-	204/-	224/-	243/-	262/-	280/-	301/-	320/-
30	—	—	—	—	—	122/-	144/-	167/-	189/-	211/-	233/-	256/-	278/-	300/-	322/-	345/-	367/-
32	—	—	—	—	—	—	167/-	192/-	218/-	243/-	268/-	293/-	319/-	344/-	369/-	394/-	420/-
34	—	—	—	—	—	—	192/-	220/-	248/-	277/-	305/-	333/-	362/-	390/-	418/-	447/-	475/-
36	—	—	—	—	—	—	222/-	253/-	284/-	316/-	347/-	378/-	410/-	441/-	472/-	504/-	535/-

Carborundum & Aloxite Cup Wheels (British Made)

Vitrified, Silicate, "Redmanol", Shellac and Rubber Bonds



In ordering cup wheels it is necessary to state the diameter, height, thickness of rim, thickness of back, and arbor holes.

A wheel 8 inches or more outside diameter, 4 inches or more in height, with an inside cup diameter of not less than 6 inches, and inside cup depth of not less than 1½ inches, and a rim thickness not exceeding 4 inches is figured as a cup wheel. Cups and outside projections, or tapered rims, take the list price of the maximum diameter and maximum thickness of rim.

Cup wheels with diameters intermediate to those shown in list take the list price of the next larger diameter.

Cup wheels with heights intermediate to those shown in list take the list price of the next higher cup.

Cup wheels with rim thickness intermediate to those shown in list take the list price of the next thicker rim.

Cup wheels more than 8 inches in height are figured proportionately to the 8-in. height for any listed diameter.

Heights of cups increase by 1 inch from 8 inches, and intermediate heights take the list price of the next higher inch.

Backs.—A price per inch or fractional part of an inch is shown in list opposite "Back per ¼ Inch," for figuring the list price of a cup wheel with back and rim of different thickness.

Cup wheels with backs varying in thickness from that of their rims to the extent of fractional parts of inches take the list price of the next higher inch in thickness.

For cup wheels more than 8 inches in height, with thickness of the back varying from that of rim, calculate first the list price for height and then make proper additions or deductions for back.

The back of a cup wheel is represented by any projection inside the cup, whether it is in the form of a small shoulder, raised dovetail, or complete back.

For backs less than 1 inch deductions from list price down to 1 inch only are allowed, and made only in full inches.

No allowance is made for holes in backs of cup wheels, regardless of diameter.

General Price List. Subject to Discount

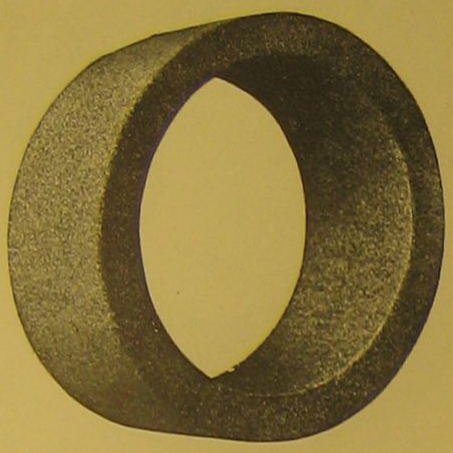
Of Vitrified, Silicate, "Redmanol", Shellac, Rubber Wheels

Diam. in Ins.	Height in Ins.	Thickness of Rim and Back in Inches													Back Ins.
		1	1¼	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾	4	
8	4	52/6	—	—	—	—	—	—	—	—	—	—	—	—	—
	5	65/-	—	—	—	—	—	—	—	—	—	—	—	—	—
	6	77/-	—	—	—	—	—	—	—	—	—	—	—	—	—
	7	89/-	—	—	—	—	—	—	—	—	—	—	—	—	—
	8	101/-	—	—	—	—	—	—	—	—	—	—	—	—	—
Back per ¼ Inch		6d.	—	—	—	—	—	—	—	—	—	—	—	—	—
9	4	68/-	69/-	70/-	—	—	—	—	—	—	—	—	—	—	—
	5	83/-	85/-	86/-	—	—	—	—	—	—	—	—	—	—	—
	6	99/-	101/-	102/6	—	—	—	—	—	—	—	—	—	—	—
	7	114/6	117/-	113/6	—	—	—	—	—	—	—	—	—	—	—
	8	130/-	132/-	134/-	—	—	—	—	—	—	—	—	—	—	—
Back per ¼ Inch		6d.	6d.	6d.	—	—	—	—	—	—	—	—	—	—	—
10	4	82/-	84/-	85/-	86/6	87/6	—	—	—	—	—	—	—	—	—
	5	102/-	103/-	105/-	106/-	107/6	—	—	—	—	—	—	—	—	—
	6	120/6	122/-	124/6	126/-	128/-	—	—	—	—	—	—	—	—	—
	7	139/-	142/-	144/-	146/-	148/-	—	—	—	—	—	—	—	—	—
	8	158/-	161/-	163/6	165/6	168/-	—	—	—	—	—	—	—	—	—
Back per ¼ Inch		7d.	6d.	6d.	6d.	6d.	—	—	—	—	—	—	—	—	—
12	4	104/-	110/-	112/-	114/-	115/6	117/-	118/-	118/6	119/-	—	—	—	—	—
	5	128/-	135/6	138/-	140/-	142/-	143/6	145/-	146/-	147/-	—	—	—	—	—
	6	152/-	160/6	163/-	166/-	168/6	170/-	172/-	173/-	174/6	—	—	—	—	—
	7	175/-	185/-	189/-	192/-	195/-	196/6	198/6	200/-	202/-	—	—	—	—	—
	8	198/6	210/-	213/6	217/-	220/-	223/-	225/-	227/-	229/-	—	—	—	—	—
Back per ¼ Inch		1/6	1/-	1/-	9d.	6d.	6d.	6d.	6d.	6d.	—	—	—	—	—
14	4	143/-	146/-	148/6	151/-	153/6	158/-	159/6	160/-	160/6	161/-	161/6	162/-	162/6	2½
	5	174/6	178/-	181/-	184/-	187/-	193/6	195/6	197/-	198/6	199/6	201/-	201/6	202/-	3½
	6	206/6	210/6	214/-	218/-	221/-	228/6	231/-	233/-	235/-	237/-	238/-	239/-	240/-	—
	7	238/-	243/-	247/-	251/-	255/-	264/-	267/-	269/-	272/-	273/6	275/-	276/6	278/-	—
	8	270/6	275/6	280/-	285/-	289/-	299/-	302/6	305/6	308/-	310/-	312/6	314/-	315/6	—
Back per ¼ Inch		2/-	1/9	1/6	1/6	1/6	1/-	1/-	9d.	6d.	6d.	6d.	6d.	6d.	—
16	4	178/-	182/6	186/6	190/-	194/-	196/-	198/6	199/-	200/-	202/-	203/-	204/-	204/6	2½
	5	218/-	223/-	227/6	232/-	236/-	239/-	242/-	244/6	247/-	251/-	253/-	253/6	254/-	3½
	6	257/6	263/-	269/-	273/6	278/-	282/-	285/-	288/-	291/-	297/6	299/-	301/-	302/-	—
	7	297/6	304/-	310/-	315/6	321/-	325/-	329/-	332/-	336/-	343/-	345/6	347/6	349/-	—
	8	337/6	344/6	351/-	357/6	363/6	368/-	372/-	376/-	380/-	389/-	391/6	394/-	397/-	—
Back per ¼ Inch		2/6	2/6	2/3	2/-	2/-	1/9	1/6	1/6	1/6	1/-	1/-	9d.	6d.	—
18	4	216/-	221/-	226/-	231/-	235/-	239/-	242/-	243/-	244/-	245/-	245/6	246/-	247/-	2½
	5	265/-	270/-	276/-	281/-	286/-	290/-	294/-	298/-	301/-	304/-	306/-	307/-	308/-	3½
	6	313/-	319/-	326/-	331/-	336/-	342/-	346/-	351/-	355/-	358/-	361/-	363/-	366/-	—
	7	362/-	369/-	375/-	382/-	388/-	393/-	399/-	404/-	408/-	412/-	415/-	418/-	421/-	—
	8	410/-	418/-	425/-	432/-	439/-	445/-	451/-	456/-	462/-	466/-	470/-	474/-	477/-	—
Back per ¼ Inch		3/3	3/-	2/9	2/9	2/6	2/6	2/3	2/-	2/-	1/9	1/6	1/6	1/6	—
20	4	260/-	266/-	271/-	276/-	282/-	286/-	290/-	291/-	293/-	294/-	295/-	296/-	297/-	2½
	5	319/-	325/-	331/-	337/-	343/-	348/-	353/-	357/-	361/-	365/-	368/-	369/-	370/-	3½
	6	377/-	384/-	391/-	398/-	404/-	409/-	415/-	420/-	425/-	429/-	433/-	437/-	441/-	—
	7	435/-	443/-	451/-	458/-	465/-	471/-	477/-	483/-	488/-	493/-	498/-	502/-	507/-	—
	8	494/-	502/-	510/-	518/-	526/-	533/-	540/-	546/-	552/-	558/-	563/-	568/-	573/-	—
Back per ¼ Inch		3/9	3/6	3/6	3/6	3/3	3/-	2/9	2/9	2/6	2/6	2/3	2/-	2/-	—
22	4	320/-	329/-	335/-	341/-	347/-	352/-	357/-	359/-	360/-	361/-	362/-	364/-	365/-	2½
	5	392/-	402/-	409/-	416/-	423/-	429/-	434/-	439/-	444/-	449/-	453/-	454/-	456/-	3½
	6	463/-	476/-	484/-	491/-	499/-	505/-	511/-	517/-	523/-	528/-	533/-	537/-	541/-	—
	7	532/-	549/-	557/-	566/-	574/-	581/-	588/-	595/-	601/-	607/-	612/-	617/-	622/-	—
	8	604/-	622/-	631/-	641/-	649/-	657/-	665/-	672/-	679/-	686/-	692/-	697/-	703/-	—
Back per ¼ Inch		7/3	4/3	4/3	4/-	3/9	3/6	3/6	3/6	3/3	3/-	2/9	2/9	2/6	—
24	4	336/-	349/-	362/-	375/-	386/-	417/-	423/-	425/-	426/-	427/-	429/-	430/-	432/-	2½
	5	410/-	425/-	440/-	454/-	467/-	510/-	516/-	522/-	528/-	533/-	538/-	540/-	541/-	3½
	6	480/-	497/-	514/-	530/-	545/-	599/-	606/-	613/-	619/-	625/-	630/-	636/-	641/-	—
	7	550/-	569/-	587/-	605/-	622/-	688/-	696/-	704/-	711/-	717/-	723/-	729/-	735/-	—
	8	623/-	644/-	664/-	683/-	702/-	780/-	788/-	797/-	805/-	812/-	819/-	826/-	832/-	—
Back per ¼ Inch		9/-	8/9	8/-	7/9	7/3	4/3	4/3	4/-	3/9	3/6	3/6	3/6	3/3	—

Cup Wheels of larger dimensions can be supplied. Prices on Application.

Carborundum & Aloxite Cylinder Wheels (British Made)

Vitrified, Silicate, "Redmanol", Shellac and Rubber Bonds



A Cylinder Wheel is one 8 inches or more outside diameter, 4 inches or more in height, with a hole not less than 6 inches in diameter, rim thickness not exceeding 4 inches and without inside projections.

A wheel of this type with inside projections is a cup wheel.

Cylinders with diameters intermediate to those shown in list take the list price of the next larger diameter.

Cylinders with heights intermediate to those shown in list take the list price of the next higher cylinder.

Cylinders with rim thicknesses intermediate to those shown in list take the list price of the next thicker rim.

Rims.—A cylinder with outside projections or with a tapered rim takes the list price of the maximum diameter and the maximum thickness of rim.

Cylinders with **heights intermediate** to those shown in the following price list take the **Straight Wheel** list price and appropriate hole allowance.

General Price List

Of Vitrified, Silicate, "Redmanol", Shellac, Rubber Wheels

Subject to Discount

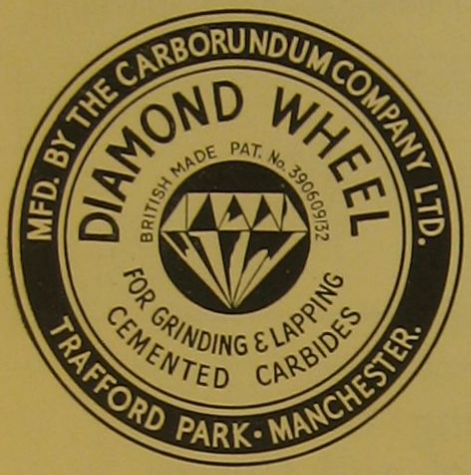
Diam. in ins.	Height in ins.	Thickness of Rim in Inches												
		1	1¼	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾	4
8	4	51/-	—	—	—	—	—	—	—	—	—	—	—	—
	5	63/-	—	—	—	—	—	—	—	—	—	—	—	—
	6	75/-	—	—	—	—	—	—	—	—	—	—	—	—
	7	87/6	—	—	—	—	—	—	—	—	—	—	—	—
	8	99/6	—	—	—	—	—	—	—	—	—	—	—	—
9	4	65/6	66/6	67/6	—	—	—	—	—	—	—	—	—	—
	5	81/-	82/-	84/-	—	—	—	—	—	—	—	—	—	—
	6	97/-	98/-	100/-	—	—	—	—	—	—	—	—	—	—
	7	112/-	114/-	116/-	—	—	—	—	—	—	—	—	—	—
	8	128/-	130/-	132/-	—	—	—	—	—	—	—	—	—	—
10	4	80/-	81/-	82/-	83/-	84/-	—	—	—	—	—	—	—	—
	5	99/-	100/-	101/6	103/-	104/6	—	—	—	—	—	—	—	—
	6	118/-	119/6	121/-	122/6	124/-	—	—	—	—	—	—	—	—
	7	137/-	139/-	141/-	142/6	144/6	—	—	—	—	—	—	—	—
	8	156/-	158/-	160/-	162/6	164/6	—	—	—	—	—	—	—	—
12	4	100/-	105/-	107/-	108/6	110/-	111/6	113/-	114/-	115/-	—	—	—	—
	5	125/-	130/-	132/6	135/-	136/6	138/-	139/6	141/-	142/-	—	—	—	—
	6	150/-	155/6	158/-	160/6	163/-	165/-	166/6	168/-	169/6	—	—	—	—
	7	175/-	180/6	183/6	186/-	189/-	191/-	193/-	195/-	197/-	—	—	—	—
	8	200/-	205/-	209/-	212/-	215/-	217/-	220/-	222/-	224/-	—	—	—	—
14	4	117/-	120/-	123/-	126/-	129/-	149/-	150/6	152/-	154/-	155/-	156/-	157/-	158/-
	5	144/6	148/-	152/-	156/-	159/6	184/-	186/6	188/6	190/6	192/-	193/6	195/-	196/-
	6	172/-	177/-	181/-	186/-	190/-	219/6	222/-	225/-	227/-	229/-	230/6	232/-	234/-
	7	200/-	205/-	210/-	215/6	221/-	255/-	258/-	260/6	263/6	265/6	267/6	269/-	271/-
	8	228/-	234/-	240/-	245/6	251/6	290/-	294/-	297/-	300/-	302/6	305/-	307/-	309/-
16	4	143/-	147/6	152/-	156/-	161/-	164/-	167/-	170/-	173/-	193/-	194/6	196/-	198/-
	5	177/-	182/6	188/-	193/-	199/-	202/6	206/-	210/-	214/-	238/6	240/6	243/-	245/-
	6	211/-	217/6	224/-	230/-	237/-	241/-	246/-	250/-	255/-	284/-	287/-	289/-	291/6
	7	245/-	252/6	260/-	267/6	275/-	280/-	285/6	291/-	296/-	330/-	333/-	336/-	339/-
	8	279/-	288/-	296/-	305/-	313/-	319/-	325/-	331/-	337/-	376/-	379/-	382/-	386/-
18	4	173/-	177/-	181/-	186/-	190/-	195/-	199/-	203/-	208/-	211/-	214/-	217/-	220/-
	5	214/-	219/-	225/-	230/-	235/-	241/-	246/-	252/-	257/-	261/-	265/-	268/-	272/-
	6	255/-	261/-	268/-	274/-	280/-	287/-	293/-	300/-	306/-	311/-	315/-	320/-	324/-
	7	296/-	303/-	311/-	318/-	326/-	333/-	341/-	348/-	355/-	361/-	366/-	371/-	376/-
	8	337/-	345/-	354/-	362/-	371/-	379/-	388/-	396/-	405/-	411/-	417/-	423/-	429/-
20	4	207/-	212/-	216/-	221/-	226/-	230/-	235/-	239/-	243/-	248/-	252/-	256/-	261/-
	5	256/-	262/-	268/-	274/-	279/-	285/-	290/-	296/-	301/-	306/-	312/-	317/-	323/-
	6	305/-	312/-	319/-	326/-	333/-	339/-	346/-	352/-	359/-	365/-	372/-	378/-	384/-
	7	354/-	362/-	370/-	379/-	386/-	394/-	401/-	409/-	417/-	424/-	431/-	439/-	446/-
	8	404/-	413/-	422/-	431/-	440/-	449/-	457/-	466/-	474/-	483/-	491/-	500/-	508/-

Cylinder Wheels of larger dimensions can be supplied. Prices on Application.

DIAMOND WHEELS FOR CEMENTED CARBIDES

Carborundum Brand Diamond Wheels

FOR GRINDING AND LAPPING CEMENTED CARBIDES


MFD. BY THE CARBORUNDUM COMPANY LTD.
DIAMOND WHEEL
BRITISH MADE PAT. No. 390609/32
FOR GRINDING & LAPPING CEMENTED CARBIDES
TRAFFORD PARK · MANCHESTER.

Progress in the abrasive art, the demand for greater speed and production, higher accuracy and perfection of finish calls for an improved wheel as a companion product for the Carborundum Brand Green Grit Silicon Carbide Wheel.

The new Carborundum Brand Diamond Wheel used in conjunction with the Green Grit Wheel reconditions cemented carbide tools more economically, gives cleaner, sharper cutting edges with less danger of checking or cracking the tip than ever before.

The chief advantages of the new Diamond Wheel are:—

1. **Gives a sharper, cleaner cutting edge.**
2. **Causes the tool to last longer.**
3. **Saves time in grinding.**
4. **Reduces maintenance costs of grinding machines.**

Carborundum Brand Diamond Wheels are made in a variety of cup and dish wheel shapes and in plain or straight wheels for almost any grinding operation that may be encountered. They are also manufactured in the form of Cut-off Wheels, 3 ins. to 6 ins. in diameter for parting operations. Small Wheels $\frac{1}{8}$ in. and smaller in diameter are made solid with the diamond abrasive throughout. Wheels larger than $\frac{1}{2}$ in. diameter have a relatively thin layer of diamond grit impregnated bond on the grinding surface which varies from $\frac{1}{32}$ in. to $\frac{1}{8}$ in. in thickness.

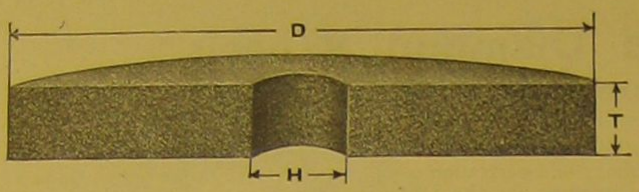
Standard grit sizes are 100, 180, 240, 400.

When ordering, specify the type, diameter, thickness, arbor holes, wall and recess dimensions, if any, and the grading.

Type No. and Description	Size, Inches	Grade	Price Each
D50. Straight Wheels, Solid to Arbor	$\frac{3}{4}\times\frac{3}{32}\times\frac{1}{4}$	W	£3 0 0
,, ,, ,, ,,	$\frac{5}{8}\times\frac{1}{8}\times\frac{5}{8}$	W	0 15 0
,, ,, ,, ,,	$\frac{7}{16}\times\frac{1}{4}\times\frac{1}{4}$	W	1 10 0
,, ,, ,, ,,	$\frac{1}{2}\times\frac{1}{4}\times\frac{5}{8}$	C	2 8 9
D51. Straight Wheels, Coated on Periphery	$2\frac{1}{4}\times\frac{1}{4}\times\frac{5}{8}$	2W	2 15 0
,, ,, ,, ,,	$3\times\frac{1}{32}\times1$	8C	3 9 6
,, ,, ,, ,,	$3\times\frac{1}{8}\times1$	2W	3 3 0
,, ,, ,, ,,	$3\times\frac{1}{8}\times\frac{5}{8}$	1C, 2B, 4A	6 8 0
,, ,, ,, ,,	$6\times\frac{1}{32}\times\frac{1}{8}$	8C	6 9 0
,, ,, ,, ,,	$6\times\frac{1}{32}\times\frac{1}{8}$	16C	11 4 0
,, ,, ,, ,,	$6\times\frac{1}{8}\times\frac{1}{8}$	2C	22 12 0
,, ,, ,, ,,	$7\times\frac{1}{8}\times1\frac{1}{4}$	2C	26 5 0
,, ,, ,, ,,	$7\times\frac{1}{8}\times1\frac{1}{4}$	4C	50 5 0
D51E. Straight Wheel with V Face, Coated on Periphery	—	—	on application
D51F. Straight Wheel with Round Face, Coated on Periphery	—	—	on application
D52. Plain Cup Wheel, Coated on Rim	$3\times\frac{7}{16}\times\frac{1}{8}$, Rim $\frac{5}{8}$, Back $\frac{7}{16}$	2W	2 17 6
,, ,, ,, ,,	$5\times\frac{5}{16}\times\frac{1}{8}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	2W	6 12 6
,, ,, ,, ,,	$5\times\frac{5}{16}\times\frac{1}{8}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	4W	11 12 6
,, ,, ,, ,,	$8\times1\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	2W	12 10 0
,, ,, ,, ,,	$8\times1\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	4W	22 10 0
D53. Flaring Cup Wheel, Coated on Rim	$3\frac{1}{2}\times1\frac{5}{16}\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	1C, 2B, 4A	5 12 6
,, ,, ,, ,,	$3\frac{1}{2}\times1\frac{5}{16}\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	2C, 4B, 8A	9 12 6
D54. Flaring Cup Wheel, Coated on Rim and Periphery	$3\times\frac{7}{16}\times\frac{1}{8}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	1C, 2B, 4A	7 14 0
,, ,, ,, ,, ,, ,,	$3\frac{1}{2}\times1\frac{5}{16}\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	1C, 2B, 4A	8 13 6
,, ,, ,, ,, ,, ,,	$3\frac{1}{2}\times1\frac{5}{16}\times1\frac{1}{4}$, ,, $\frac{1}{16}$, ,, $\frac{5}{16}$	2C, 4B, 8A	14 18 6
D55. Dish Wheels, Coated on Rim	$3\times\frac{1}{4}\times\frac{1}{8}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2W	2 17 6
,, ,, ,, ,,	$3\times\frac{1}{4}\times\frac{1}{8}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2W	2 17 6
,, ,, ,, ,,	$4\times\frac{1}{4}\times\frac{1}{8}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2W	5 7 6
,, ,, ,, ,,	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	1C, 2B, 4A	5 10 0
,, ,, ,, ,,	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2C, 4B, 8A	9 10 0
D56. Cup Wheels with Bolt Holes, Coated on Rim, Excello Type	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2W	8 15 0
,, ,, ,, ,, ,, ,,	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	1C, 2B, 4A	15 15 0
,, ,, ,, ,, ,, ,,	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2C, 4B, 8A	29 15 0
,, ,, ,, ,, ,, ,,	$6\times\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	4C, 8B, 16A	57 5 0
,, ,, ,, ,, ,, ,,	$6\times1\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2W	8 15 0
,, ,, ,, ,, ,, ,,	$6\times1\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	1C, 2B, 4A	15 15 0
,, ,, ,, ,, ,, ,,	$6\times1\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	2C, 4B, 8A	29 15 0
,, ,, ,, ,, ,, ,,	$6\times1\frac{1}{4}\times1\frac{1}{4}$, ,, $\frac{7}{16}$, ,, $\frac{7}{16}$	4C, 8B, 16A	57 5 0
D75. Petrographic Wheel, Coated one side	$4\times\frac{3}{4}\times$ no hole	1B	8 7 6
DS25. Hand Lapping Stone, Length 4 × Width $\frac{7}{16}$ × Thick $\frac{3}{4}$; Coated One End $\frac{1}{16}$ deep on 1″ Length		2C	1 10 0
,, Hand Lapping Stone, Length 4 × Width $\frac{7}{16}$ × Thick $\frac{3}{4}$; Coated Two ends $\frac{1}{32}$ deep on 1″ Length		1C	1 10 0

Prices for Wheels other than those Listed, on Application

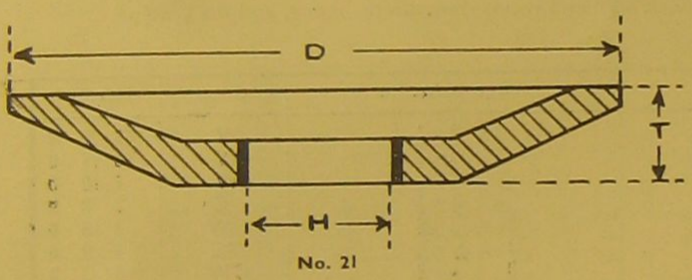
GRINDING WHEELS



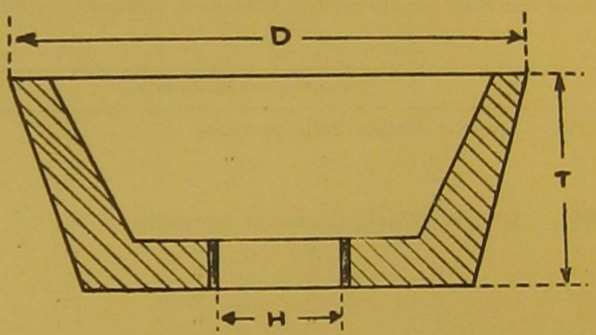
Carborundum Co's (British Made) Grinding Wheels for Churchill-Cincinnati Centreless Grinding Machines

Grinding Wheels					Feed Wheels				
Type	Diam., ins.	Thick., ins.	Hole, ins.	Price, each.	Type	Diam., ins.	Thick., ins.	Hole, ins.	Price, each.
Straight	20	3	5	239/-	Straight	12	3	5	115/-
,,	20	4	12	261/-	,,	12	4	5	150/-
,,	20	5	12	323/-	,,	12	5	5	187/6
,,	20	6	12	384/-	,,	12	6	5	225/-
,,	20	7	12	446/-	,,	12	7	5	262/6
,,	20	8	12	508/-	,,	12	8	5	300/-

Carborundum & Aloxite Grinding Wheels for Cincinnati No. 2 Universal Tool and Cutter Grinding Machines



No. 21



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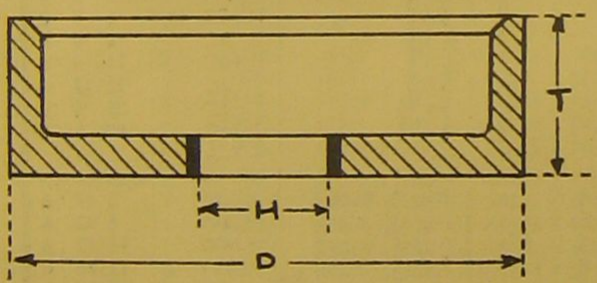

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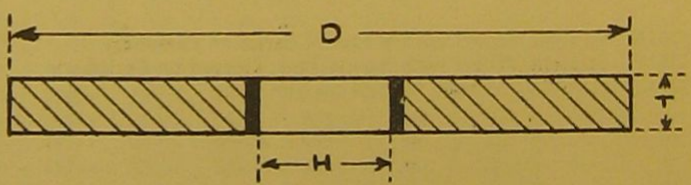

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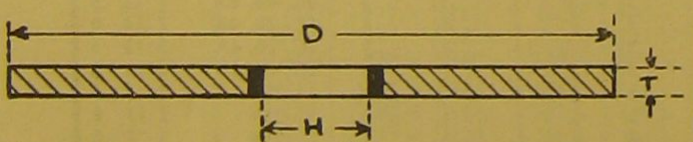

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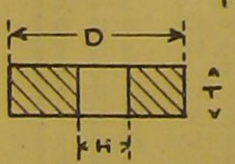

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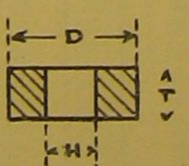

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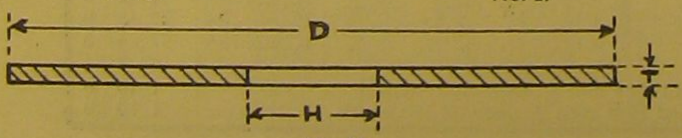


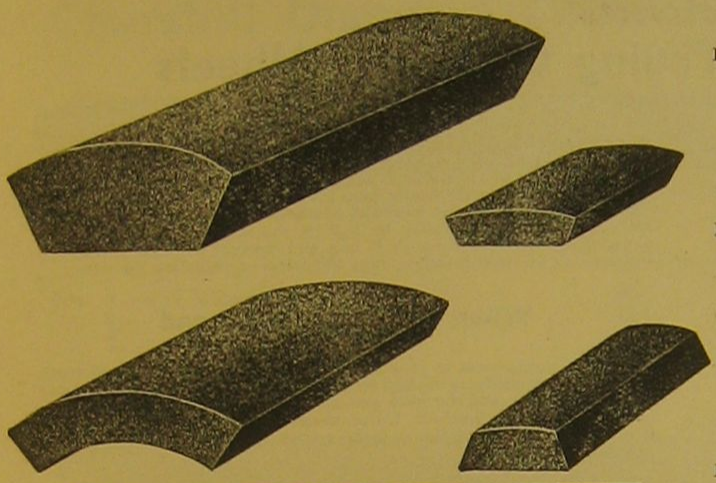
No. 27

Wheel No.	Shape	Size, Ins. D. T. H.	Grading	Material	Price Each
21	Dish (Lead Bushed)	6 × ¾ × 1¼	50P25	Aloxite	11/-
23	Flare Cup (Lead Bushed)	3½ × 1½ × 1¼	50P25	Aloxite	8/-
24	Cup (Lead Bushed)	5 × 1½ × 1¼	50P25	Aloxite	12/9
25	Straight (Lead Bushed)	6 × ½ × 1¼	100ME3	Carborundum	9/-
26	Straight	⅞ × ¼ × ¼	60MBlu	Aloxite	1/9
*27	Straight (Lead Bushed)	8 × ⅜ × 1¼	A46T600	Aloxite	11/9
28	Straight	6 × ⅛ × 1¼	E60K6X	Aloxite Redmanol	6/3
29	Straight	⅝ × ¼ × ¼	60MBlu	Aloxite	1/9

*For Face Mill Grinding Attachment only.

SEGMENTS AND HONING STICKS

Carborundum Segments (British Made)



Blanchard Machine Company

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring Size. Ins.	Sketch No.	Price, each.
3	5 7/8	4 3/4	1 1/2	16	4769	12/3
3	5 1/4	4 5/16	1 1/2	18	5111	10/9
5	6 1/4	6 1/4	1 1/4	11	—	21/6
6	7·06	7·06	1 3/4	18	—	31/6
7	6	6	2	27 and 30	—	34/–
9	4 1/2	3 11/32	3 1/2	32, 36, and 42	—	41/–

Churchill Machine Tool Company, Ltd.

Length. Ins.	Width Top. Ins.	Width Bottom Ins.	Thickness. Radially. Ins	Ring Size. Ins.	Sketch No.	Price, each.
6	3 5/16	4 1/16	1 1/2	14, 18, 24 ...	4183	12/9
6	6 13/16	7	2	34, 44, 54 ...	3736	29/–

Diamond Machine Company

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring Size. Ins.	Sketch No.	Price, each.
7 1/4	7 1/4	6 1/2	1 3/4 (offset)	30 ...	5423	33/6
7 1/4	6 1/2	6 1/2	2 (new shape)	30, 36, 66	A475	32/–
7 1/4	6	6	3 ,,	30, 36, 66	—	42/–
7 1/4	6	6	2 ,,	54 ...	—	30/–
7 1/4	5 13/16	5 13/16	3 ,,	54 ...	—	41/–

Hulse & Company, Ltd.

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Sketch No.	Price, each.
7	3 1/2	3	1 3/4	8048	14/6
7	3 1/2	3 1/2	1 1/2	7039	13/3

Lumsden Machine Company, Ltd.

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring Size Ins.	Sketch No.	Price, each.
6	4 5/8	3 5/8	1 1/4	12, 18, 24, 30 ...	2608	12/–
6	4 5/8	3 1/8	1 3/4	12, 16, 20, 24, 30	5920	14/9
6	5	3 11/16	1 1/2	9	5314	14/6
9	6 5/8	4 1/2	2 1/4	44 and 50 ...	A107	37/–

John Lund

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Sketch No.	Price, each.
6	3 1/4	1 7/8	1 1/2	8819	8/3
6	3 5/16	4 1/16	1 1/8	4183	12/9
8	4 1/2	2 13/16	1 3/4	8731	18/3
9	4 1/8	3 1/8	2 1/4	6435	26/–
12	6 1/2	4 1/4	2 1/4	5982	46/–
12	6 1/2	5 1/8	1 1/2	4188	35/–
12	8 1/4	4 3/4	4	8288	86/–

Pratt & Whitney Company

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring Size. Ins.	Sketch No.	Price, each.
6	4 1/2	4 1/2	1 1/2	14	8911	18/9
7	6	6	2	22	8919	34/–

Royden Marble Machinery Company

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring, Size Ins.	Sketch No.	Price, each.
3	4 3/4	2 3/8	2 7/16	10 ...	2108	11/3
3	6 7/16	3 11/16	2 3/4	14 ...	2107	18/3

Snow & Company

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Ring Size	Sketch No.	Price, each.
10	4 7/32	3 3/8	1 3/4	1A./M225 ...	8447	24/–
14	8 3/4	6 15/16	3	2A./M206 ...	6767	91/–
12	8 3/4	7 7/16	2	3A./M206 ...	—	70/–
13	8 1/2	5 1/8	3 3/4	1B./M206 ...	6717	93/–
12	8 3/4	7 13/32	2 1/16	2B./FOR ...	8278	60/–
12	8 1/2	6 1/4	2	3B./M206 ...	—	72/–
10	4 3/16	3 3/8	1 3/4	4B.	8227	24/–
9	6	3 5/16	3	1C./M225 ...	6048	40/–
8	6	4 1/4	1 3/4	2C./M225 ...	6591	31/–
8	4 1/2	2 3/4	1 3/4	3C.	9326	17/9
7	3 5/8	2	2	ID.	8966	15/–
6	3 1/2	4 5/8	1 3/4	1H./M416 ...	—	15/3

Tasker Engineering Company, Ltd.

Length. Ins.	Width Top. Ins.	Width Bottom. Ins.	Thickness. Radially. Ins.	Sketch. No.	Price, each.
6 1/2	3 1/4	2 3/8	2 1/2	4555	16/–
16	8 1/8	5 5/8	4	276	118/–

List prices for Shellac, Rubber, and other organic bonded segments on application.

Carborundum Honing Sticks (British Made)

Carborundum Finished Honing Stones are the outcome of prodigious research in the abrasive field. They are supplied in grits ranging from 36 (coarse) to 3F (very fine) in any standard grade of hardness. The fact that the premier Honing Machine Makers have standardised upon these stones bears eloquent testimony to their efficiency and excellence. The stones in common use are 120 G6H, which produces a satin or commercial finish, and the selection of stone for any special operation may be judged from this standard. A wide range of sizes in all popular gradings are maintained in stock, and supplies can be furnished loose or mounted into customers' Honing Shoes.

Prices and particulars on application.

Fusible Cement (British Made)

For Holding Grinding Wheels, Segments, Etc. in Holders.

To Use:—Break into small pieces and in a ladle or iron pan, etc., **melt very slowly over a gas plate or low fire, stirring occasionally until thoroughly melted and in a liquid state.**

The cement can then be poured into the joints between the wheel and holder and sets very quickly, clay should be put round the outside of crevices to prevent liquid running to waste. When cold the cement can be chipped or scraped off, leaving a smooth surface.

In melting, **should the cement be allowed to get too hot and take fire,** a wet cloth thrown over it will extinguish the flames.

Price ... ... 8d. per lb.

Churchill Diamond Tools for Truing Grinding Wheels

(British Made)

During the past few years abrasive wheel manufacturers have greatly improved the quality and hardness of their abrasive material used in the manufacture of wheels. Especially is this the case with material manufactured by the Carborundum Company, which are artificial abrasives produced by intense heat in the Electric Furnace. The resultant product is extremely pure and hard, in fact second in hardness only to the diamond itself. The whole of the abrasive products have been greatly improved, and users run their wheels up to 6000 surface feet per minute, instead of never exceeding 5000 feet, which was the maximum a few years ago. The diamonds used for truing these harder wheels running at a greater speed have never been given serious consideration.

The Cape Crystal, which was good enough for the softer wheels, running at lower speeds, is to-day obsolete for such purposes. It is essential that only the best quality industrial diamonds should be used, such as Brazilian and Australian Bortz, Cape Ballas and Black Carbon.

On Size of Diamonds to be used

Another important feature is the size of diamond to use for certain diameter wheels. For instance, a diamond sufficiently large for truing an 8-inch wheel, would be totally unsuitable for truing a wheel of 20 inch diameter.

Large wheels require large size diamonds, for the reason that the vibration when a wheel is out of truth is so intense, that small stones are easily disturbed in their setting, and when this occurs the rapid oscillations will soon cause the stone to split or escape.

We have carefully compiled a list of wheel diameters, giving the relative price of diamond tools recommended for each size of wheel. Thus by referring to this list, a customer would order a larger diamond for truing 20-inch wheels than for truing 8-inch wheels.

There is a limit to the amount of shock a diamond will stand. Very few diamonds would be lost if the foreman grinder would occasionally examine the tools in use, and instruct his men to take the utmost care to avoid grinding away the metal surrounding the stone.

When to use the Diamond

It is more economical to true a wheel when it is slightly out of truth than to leave it until it is too bad for grinding. The shock is much greater on the diamonds, and the work ground with a wheel that is out of truth cannot be correctly finished. Unless the grinding wheel is a true cylinder it is impossible to attempt to make a true cylinder of the work being ground.

On Fixing the Diamond Tool

If at all possible, fasten the holder rigidly to some portion of the grinding machine before passing across the face of the wheel. This is infinitely better than holding the tool in the hand.

We recommend fixing of a diamond tool either 2 inches above or below the centre of the grinding wheels. Also, if possible, at a horizontal angle of a few degrees either to the right or to the left. This will always ensure a fresh cutting edge, when the tool is refixed, and so save frequent re-setting. An abundant flow of water on the diamond when truing will keep it cool, and avoid disintegration, thus giving it much longer life.

How the Stones should be Mounted

A good deal depends on the method of mounting the stones in their holders. Our experience, extending over many years, has convinced us of the superiority of the method shown below.

Churchill Diamond Tool Holders

NORTON AND CHURCHILL TYPES

SECTION

LANDIS TYPE

Diamonds mounted by the Churchill process cannot be pulled out of their settings during wheel dressing.

When being mounted they are never exposed to shock and the risk of fracture, because the metal is not closed round by hammering or pressure.

The setting is so secure that metal can be filed away to obtain a new cutting point without risk of the diamond becoming loose. It is not necessary each time to cut the diamond out and re-set.

We mount these diamonds ourselves and hold large stocks of loose diamonds for selection.

We Remount Stones to Instruction

Parcels of Loose Diamonds

We also supply Parcels of Loose Diamonds for selection

Churchill Diamond Tools for Truing Grinding Wheels

(British Made)

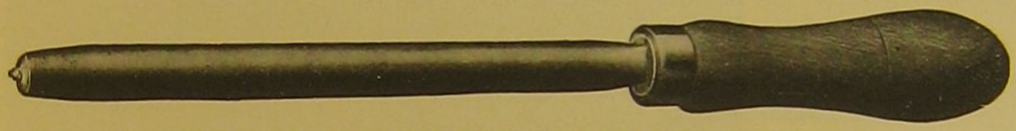
STOCKED IN ¾-IN. DIAMETER HOLDERS. SPECIAL SIZES TO ORDER.

Churchill and Norton Pattern

For Machine use only

Prices, Each

No. 1.—For Wheels up to 9 inches diam.	...	**30/–**	
,, **2.**— ,, ,, 12 ,, ,,	...	**42/–**	
,, **3.**— ,, ,, 15 ,, ,,	...	**60/–**	
No. 4.—For Wheels up to 18 inches diam.	...	**78/–**	
,, **5.**— ,, ,, 24 ,, ,,	...	**108/–**	



STOCKED IN ½-IN. DIAMETER HOLDERS. SPECIAL SIZES TO ORDER.

Style A Hand Tool

Should not be used for heavy work

Prices, Each

No. 1.—For Wheels up to 6 inches diam.	...	**20/6**	
,, **2.**— ,, ,, 9 ,, ,,	...	**24/–**	
,, **3.**— ,, ,, 12 ,, ,,	...	**36/–**	
No. 4.—For Wheels up to 15 inches diam.	...	**54/–**	
,, **5.**— ,, ,, 18 ,, ,,	...	**72/–**	
,, **6.**— ,, ,, 24 ,, ,,	...	**102/–**	

STOCKED IN ½-IN. DIAMETER HOLDERS. SPECIAL SIZES TO ORDER

Style B,

For Hand Use or for fixing in a Grinding Machine

Prices, Each

No. 1.—For Wheels up to 9 inches diam.	...	**24/–**	
,, **2.**— ,, ,, 12 ,, ,,	...	**36/–**	
,, **3.**— ,, ,, 15 ,, ,,	...	**54/–**	
No. 4.—For Wheels up to 18 inches diam.	...	**72/–**	
,, **5.**— ,, ,, 24 ,, ,,	...	**102/–**	
,, **6.**— ,, ,, 30 ,, ,,	...	**126/–**	

STOCKED IN ½-IN. DIAMETER HOLDERS. SPECIAL SIZES TO ORDER

Style B, Adjustable

For Hand Use or for fixing in a Grinding Machine

Prices, Each

No. 1.—For Wheels up to 9 inches diam.	...	**36/–**	
,, **2.**— ,, ,, 12 ,, ,,	...	**54/–**	
,, **3.**— ,, ,, 15 ,, ,,	...	**72/–**	
No. 4.—For Wheels up to 18 inches diam.	...	**96/–**	
,, **5.**— ,, ,, 24 ,, ,,	...	**132/–**	

Loose Studs for Diamond Tools

Style G **Style H**

No. 1.—For Wheels up to 9 inches diameter	...	**24/–**
,, **2.**— ,, ,, 12 ,, ,,	...	**36/–**
,, **3.**— ,, ,, 15 ,, ,,	...	**54/–**
,, **4.**— ,, ,, 18 ,, ,,	...	**72/–**
,, **5.**— ,, ,, 24 ,, ,,	...	**102/–**

Diamond Tools for Cincinnati Centreless Grinders

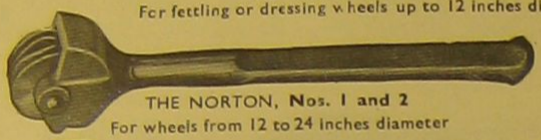
These diamond holders are similar to Style H, illustrated on left.

No. 1.—For truing Grinding Wheel.
No. 2.— ,, Control Wheel.

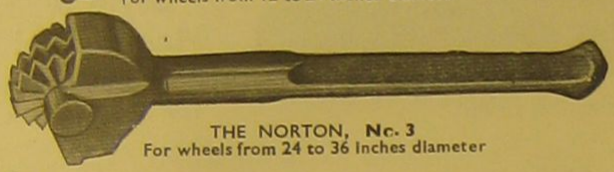
Prices on Application.

Grinding Wheel Dressers (Made in U.S.A.)

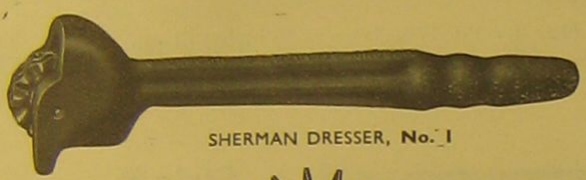
THE HUNTINGTON **No. 0**
For fettling or dressing wheels up to 12 inches diameter



THE NORTON, **Nos. 1 and 2**
For wheels from 12 to 24 inches diameter

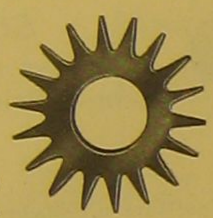


THE NORTON, **No. 3**
For wheels from 24 to 36 inches diameter

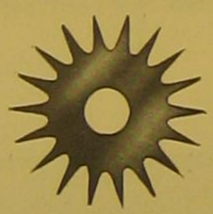


SHERMAN DRESSER, **No. 1**

'FOUNDRY" CUTTER
(Slightly thicker than Paragon)



PARAGON OR SOUTHINGTON CUTTER



"CRESCENT" CUTTERS

Tools for Truing and Dressing Emery Wheels should be kept constantly at hand ready for use, as it is of the utmost importance that wheels should be kept perfectly true.

A variety of styles, both in size and shape of cutters, are desirable for wheels of different coarseness, hardness, and size.

We recommend the large Corrugated and Twisted Cutter Dressers for the larger and coarser wheels, and small Twisted Cutter Dressers, or the "Huntington," for smaller and finer wheels.

The "Paragon" or "Southington" are similar to "Huntington" Cutters, but have steel bushings to prolong the life of the hole.

"Crescent" Cutters are specially suitable for Crystolon and Carborundum Wheels of fine grade.
They have 16 fine teeth on each disc and can also be used in "Huntington" Dressers.

"Foundry" Cutters—The construction of these cutters enables wheels of large diameter and coarse grit to be trued in a highly satisfactory manner, and it is claimed that they will do the work of other larger size cutters at about one-third of the initial cost.

"Foundry" Cutters can be used in the regular No. 0 Huntington Holder.

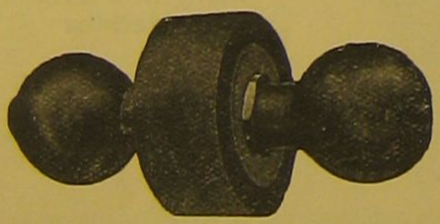
Prices of Dressers

Huntington No. 0 Dresser, diam. of Cutter 1⅛ ins.	3/6
,, **No. 1** ,, ,, 1½ ,,	3/11
,, **No. 2** ,, ,, 2⅛ ,,	6/3
Norton No. 1 Dresser, Small Twisted Cutters, 1⅛ inches diameter	6/3
Norton No. 2 Dresser, Large Twisted Cutters, 2¼ inches diameter	7/6
Norton No. 3 Dresser, Corrugated Cutters, 2 in set, 2½ inches diameter	10/6
Sherman No. 1	3/11
,, **No. 2**	6/3

Prices of Extra Cutters

For Huntington No. 0 ... per doz. sets	4/–
,, ,, **No. 1** ... ,, ,,	4/6
,, ,, **No. 2** ... ,, ,,	20/–
,, **Paragon** or **Southington** } fitting No. 0 ,,	6/–
,, **Crescent** ... ... } Huntington ,,	9/6
,, **Norton No. 1** ... ... ,,	10/–
,, ,, ,, **2** ... ... ,,	12/–
,, ,, ,, **3** ... ... ,,	16/–
"Foundry" Cutters, fitting No 0 Huntington ,,	7/–
For Sherman No. 1 ... ... ,,	5/9
,, ,, **No. 2** ... ... ,,	18/–

The Metcalf Dresser (British Made)



This Dresser consists of two heavy knobs at the ends of a short shaft, with an abrasive wheel of special grade and grit mounted on a sleeve between them.

The knobs are of iron to give weight, and are held in the hands when the Dresser is in use.

The principle of this Dresser in truing a wheel is three-fold:—
First, that of inertia due to the weight in the balls; second, the peculiar cutting effect of one abrasive wheel on another when held at an angle of 30 to 40 degrees from the horizontal; and third, the gyroscopical action set up by the rapid rotation of the wheel on its axis.

This little appliance enables you to "true" your wheels correctly and at the same time allows a coarse, open face for rapid cutting being obtained simply by holding the Dresser with its axis nearly horizontal; or a fine, close-grained face for smooth work by holding it with its axis more nearly vertical.

For bringing up a sharp corner on thin and delicate wheels this Dresser has no equal, as it is not liable to chip the fine edge.

Price ... ... 16/– each
Extra Wheels, Carborundum, 3½ × ″½ × ⅞ **ins., 8/–**

The Desmond Diamo-Carbo Dresser (Made in U.S.A.)

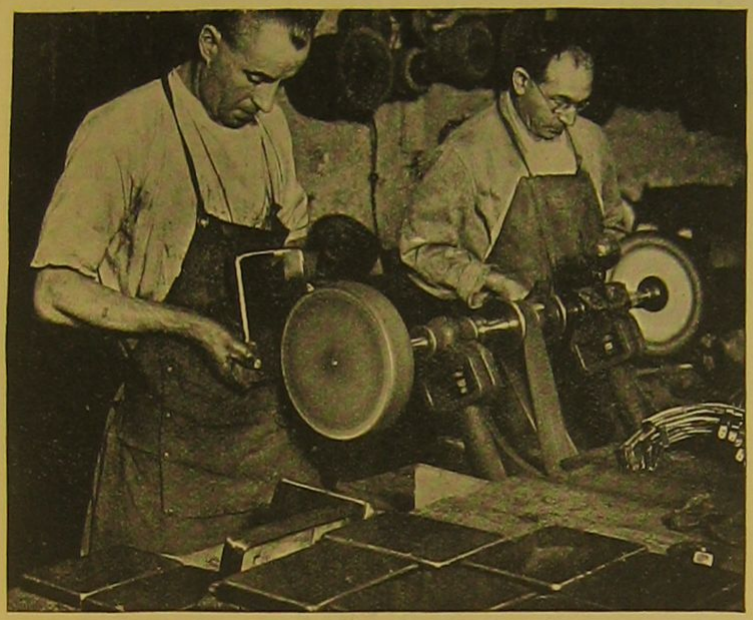
The Desmond Dresser consists of a steel tube fitted with an abrasive of sufficient hardness to cut and shape grinding wheels.
On the outside of the tube is an adjustable collar which is moved so as to form a back stop over the tool rest.
The Dresser lasts until the tube with the abrasive in it is worn down

It is not intended to be used for truing hard wheels such as are used for grinding castings or rough work.

Price, No. 3—10 inches long ... ... **8/6 each**
,, ,, **5**—12 ,, ,, ... **10/6** ,,

ALOXITE GRAIN & FINISHING COMPOUND

Aloxite "TP" and "TPX" Polishing and Buffing Grain (British Made)



"THE GRAIN WITH SURFACE TENACITY"

A special treatment "roughens" the surface of ALOXITE "TP" and "TPX" Grain giving it a "high capillarity" and great surface tenacity which enables the glue to hold the grain "fast" to the polishing wheel or mop.

This fast-cutting grain is hard and tough, possessing keen sharp angles with just "the right fracture" to keep up high production figures by continuing to cut and polish throughout the whole of its life.

ALOXITE "TP" GRAIN—for all general polishing.

ALOXITE "TPX" GRAIN—specially prepared for polishing and buffing Stainless Steel.

Grit No.	Quantity	ALOXITE "TP" GRAIN For General Use		ALOXITE "TPX" GRAIN For Stainless Steel	
		Per Lb.	Per Cwt.	Per Lb.	Per Cwt.
6, 8, 10, 12, 14, 16, 20, 24, 30, 36, 40, 50, 60, 80, F.	7 lb. bags only	4½d.	42/-	4¾d.	44/4
	28 lb. or 56 lb. bags only	4¼d.	39/8	4½d.	42/-
	1 cwt. bags only	4d.	37/4	4¼d.	39/8
90, 100, 120, 150, 180, 220.	7 lb. bags only	4d.	37/4	4¼d.	39/8
	28 lb. or 56 lb. bags only	3¾d.	35/-	4d.	37/4
	1 cwt. bags only	3½d.	32/8	3¾d.	35/-
Powders FF. & FFF.	7 lb. bags only	6½d.	60/8	6½d.	60/8
	28 lb. or 56 lb. bags only	6¼d.	58/4	6¼d.	58/4
	1 cwt. bags only	6d.	56/-	6d.	56/-

Carborundum Brand Finishing Compound

for all Lapping Purposes

Abrasives Used:—Two kinds of manufactured abrasives are used in the preparation of the compound.

Carborundum Brand Silicon Carbide is the abrasive used for lapping hardened metals, particularly gears.

Aloxite Brand Aluminium Oxide is principally suited to the lapping and finishing of softer metals.

The Carrier Medium or Vehicle:—The vehicles in the Carborundum Brand Finishing Compounds are not simply oils, greases or soaps. Each grade of compound has a definite use and each vehicle is designed for some specific purpose, offering the best features in carriers for such applications.

Grades.—In order to meet all conditions and classes of lapping Carborundum Brand Finishing Compounds are made in various grades of suitable grits from coarse to fine.

R. Series Hard abrasives for hardened steels, rolling or sliding action.
W. Series Medium harsh abrasives for soft steels, rolling action, or on any metal where there is a sliding action.
G. Series Medium soft abrasives for rolling or sliding action on soft metals.
H. Series Soft abrasives for all soft metals, and for hard metals as especially recommended.

Special Note:—Coarse, medium and fine gradings of any particular series **refer only to that series** and are not comparable with coarse, medium or fine grades of any other series.

Quantities ...	28 lb. Drums	7 lb. Tins	1 lb. Tins	½ lb. Tins
Price, Series 1, 7 and 40 (R.G. and W. Series) ...	154/- per cwt.	1/9 per lb.	2/- per lb.	2/6 per lb.
,, ,, 40 and 41 (H. Series)	196/- ,,	2/3 ,,	2/6 ,,	3/- ,,
,, ,, 46, 50 and 400 (H. and A Series) in ½ lb. Glass Jars only			4/- per lb.	

Grinding of Tungsten Carbide Alloys

Green-Grit Wheels for grinding of cemented carbides are supplied. Full particulars will be sent on request.

VALVE GRINDING & LAPPING COMPOUNDS

"Pep" Valve Grinding Compound (Made in Canada)

For quick and accurate "grinding" in of all kinds, "PEP" is the most effective combination possible.

"PEP" contains no oil or grease, but is made of the Norton Co.'s "Crystolon" and water with other ingredients which give it the right consistency and prevent it from drying out.

Ordinary care in cleaning and drying the finished work entirely prevents rusting.

"PEP" grinds about twice as fast as any greasy compound, and does not scratch. It is made in one grade but **gives the required finish with one application only,** thus saving waste of time and material where both a "coarse" and a "fine" grade are used on the same job.

"Pep" when slightly diluted with water, grinds super hard inserted steel valve seats, very satisfactorily.

IN USE

" PEP" is clean and convenient. Stir, and if it requires thinning add **water** only. Don't use petrol or oil.

Simply wipe part to be ground with a wet rag and apply "PEP" with the finger. After grinding, wipe with a **wet** cloth, which leaves the face quite clean, and **dry thoroughly** to prevent rusting.

Prices

In	2 oz. Air-tight Tins	... ...	**1/3**
,,	4 oz. ,, ,, ,,	... ...	**1/10**
,,	8 oz. ,, ,, ,,	... ...	**3/2**
,,	16 oz. ,, ,, ,,	... ...	**5/6**

"Pep" Babbitt Bearing Grinding Compound (Made in U.S.A.)

Is safe, rapid, smooth cutting in action, and does away with hand scraping of babbitt bearings. It is a dry powder which can conveniently be mixed with either oil or water, as required.

Price, in 4-oz. Cans ... ... **3/6 each**

"Pep" Lapping Compound (Made in U.S.A.)

Is excellent for fast lapping of cylinders, pistons, and all iron and steel surfaces. **It gives a perfectly smooth finish.** Made from pure black carbide of silicon, this lapping compound is—**water mixed**—and contains no oil or grease.

Price, in 6-oz. Tins ... ... **2/9 each**

"Red Ring" Lapping Compound (Made in U.S.A.)

Specially developed for fast, economical precision lapping "Red Ring" Compounds are recommended for giving a smoother finish.

"Red Ring" Lapping Compounds may be had with **either water soluble or oil soluble bases.**

Water Soluble Compound is particularly recommended for general use as it is easily removed in water washers.

Oil Soluble Compound must be washed off with some hydrocarbon solvent.

Made in four grades:—

Grade L.C.H. Standard, for standard transmission gear work.

,, **L.C.H. Finishers,** for use where fine finish and high smooth polish is required.

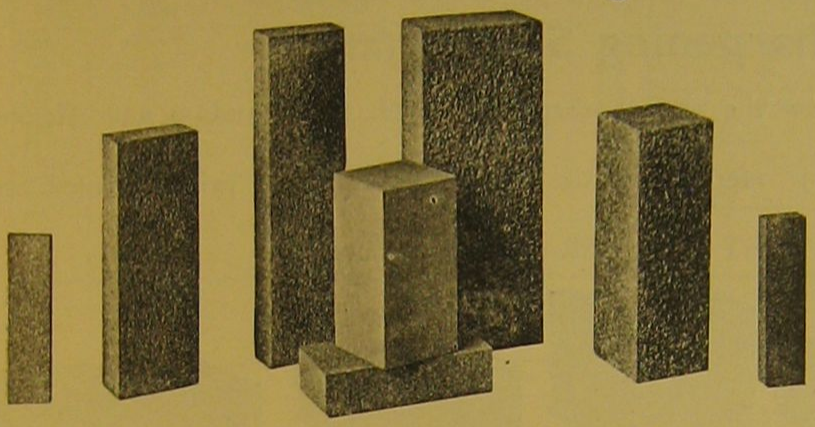
,, **L.C.H. Extra Cut,** suitable for lapping gears 6 to 8 feet diameter.

,, **L.C.H.P.** For lapping machines where compound passed through a pump.

Price, In 5 gallon Cans. Either Water or Oil Soluble Base ... **33/4 per gallon (American)**

CARBORUNDUM BRICKS, STICKS and POWDERS

Carborundum Rubbing Bricks and Stones (British Made)



These Bricks and Stones are of great service for scouring castings, for finishing surfaces in many classes of foundry and machine shop work, also for dressing and smoothing marble and granite. They are made by the same process as the Carborundum regular vitrified wheels, but are not squared up or dressed, and may be used dry, or with oil or water if preferred. The principal demand is for Bricks made of comparatively coarse grain, but they can be supplied in any desired grain from No. 20 down to FF at the prices shown.

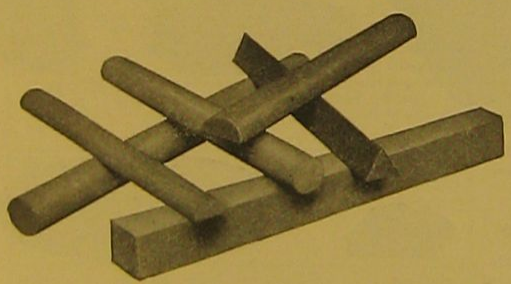
Special Sizes and Grits to order.

Sizes and Prices

No.	Size, Inches	Price per Doz.	No.	Size, Inches	Price per Doz.	No.	Size, Inches	Price per Doz.
202	6×2½×½	£1 4 0	212	8×2 ×1	£1 19 0	220	4×4×4	£6 18 0
205	6×3 ×2	3 18 0	213	6×3 ×3	5 11 0	221	4×3×3	3 18 0
206	8×3 ×2	4 16 0	214	6×2 ×2	2 17 0	222	4×2×2	1 19 0
207	8×3 ×3	7 4 0	215	6×2 ×1	1 10 0	223	4×2×1	1 4 0
208	8×4 ×2	6 18 0	216	6×2 ×½	1 4 0	224	4×2×½	0 15 0
209	8×4 ×3	9 9 0	217	5×2½×1	1 13 0	226	4×1×½	0 12 0
210	8×4 ×4	12 12 0	218	5×1½×1	1 4 0	227	4×1×¼	0 15 0
211	8×2 ×2	3 12 0	219	5×1½×½	0 15 0	228	4×3×2	2 17 0

Carborundum Vitrified Unfinished Sticks

Square, Triangular, Half-Round, and Round



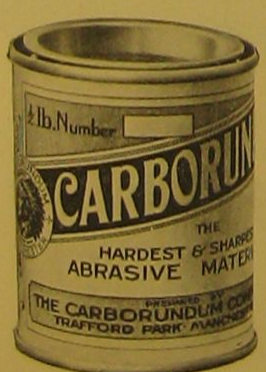
Carborundum Sticks for Dressing Wheels

Sticks measuring 6×1×1 inches can be supplied for use in dressing grinding wheels

Price ... ... 27/6 per doz.

Prices Each

Thickness, Inches		¼	⅜	½	⅝	¾	1
Length Ins.	Shape						
4	Square	1/-	1/-	1/-	1/-	1/-	1/3
	Triangular	1/2	1/2	1/2	1/2	1/2	1/6
	Half-Round	1/2	1/2	1/2	1/2	1/2	1/6
	Round	1/3	1/3	1/3	1/3	1/3	1/7
6	Square	1/6	1/6	1/6	1/6	1/6	1/9
	Triangular	1/10	1/10	1/10	1/10	1/10	2/1
	Half-Round	1/10	1/10	1/10	1/10	1/10	2/1
	Round	1/11	1/11	1/11	1/11	1/11	2/2
8	Square	—	—	2/3	2/6	2/6	2/6
	Triangular	—	—	2/8	3/-	3/-	3/-
	Half-Round	—	—	2/8	3/-	3/-	3/-
	Round	—	—	2/10	3/2	3/2	3/2



Carborundum Grains and Powders

The freedom of cut of Carborundum grains and powders makes them invaluable for grinding in motor valves, fullway, gas, and other cocks, reducing of flat metal surfaces, and for a variety of operations where lapping has to be performed.

Carborundum grains are produced by crushing and grinding the crude crystals, washing, and separating by sieves into various sizes.

These are numbered, the same as emery, in accordance with the number of threads per linear inch of the sieve through which they have passed. The grit numbers supplied are as follows:—6, 8, 10, 12, 14 16, 20, 24, 30, 36, 40, 50, 60, 70, 80, 90, 100, 120, 150 180, 220, F, FF, and FFF.

		Grits 6—FFF.
Price, in 1-lb. tins	Carborundum	... 1/6 each
,, in ½-lb. tins	or	... 1/– ,,
,, in small tins	Aloxite	6d. ,,

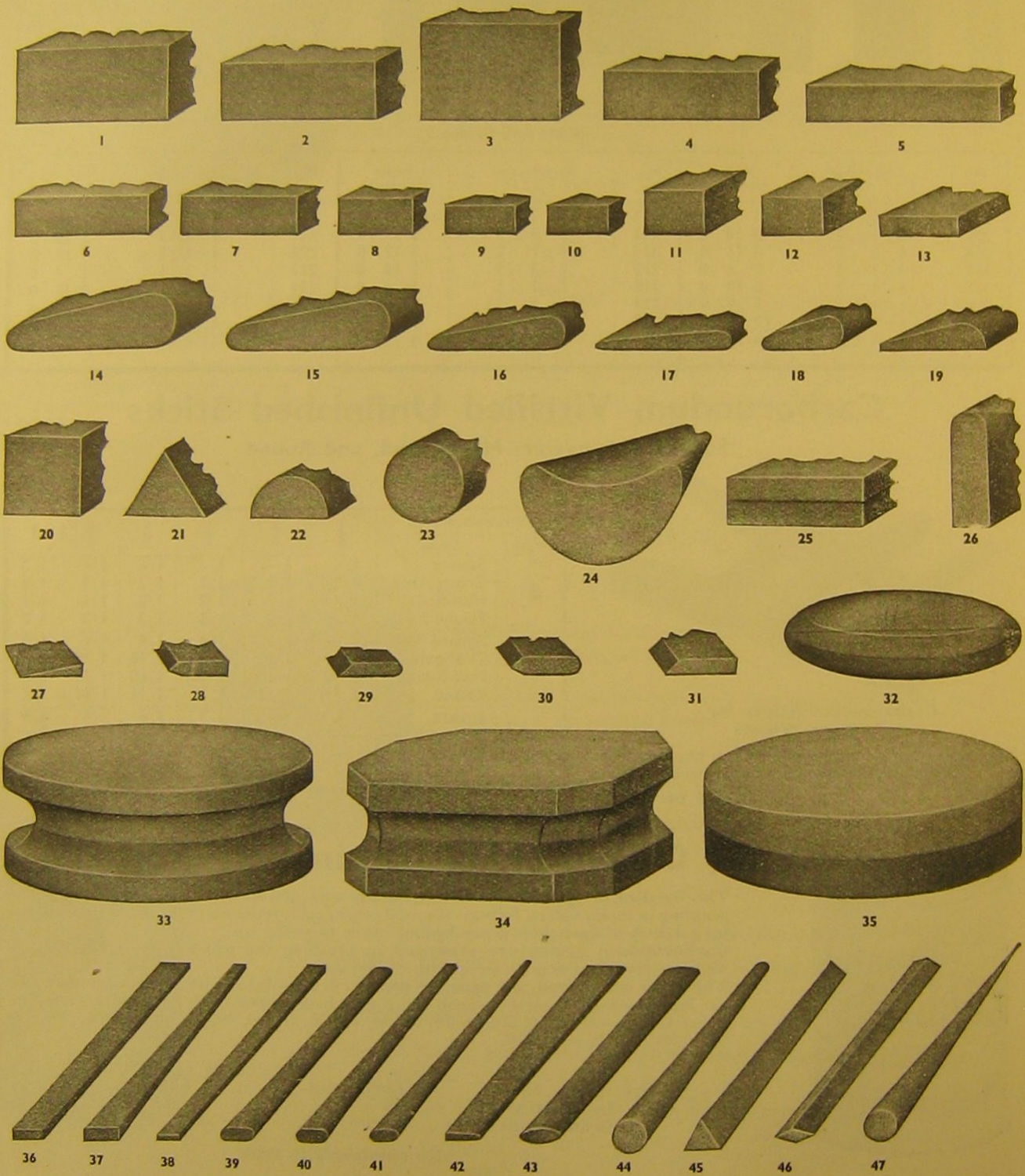
Also obtainable in bulk

Carborundum and Aloxite Brand Sharpening Stones (British Made)

The illustrations given below show the various shapes in which Carborundum and Aloxite Sharpening Stones are supplied.

Each shape is numbered for easy reference to the ranges of sizes and prices printed on the opposite page.

In ordering, please always quote LIST NUMBER—this is important.



SHARPENING STONES

Sizes and Prices

Carborundum and Aloxite Brand Sharpening Stones

Carborundum Stones

List No.	Size, Ins.	Description	Grade	Shape	Price Each
108	8×2×1	Bench	Comb.	No. 1	6/3
156	,,	,,	Ex. Fine		6/3
115	,,	,,	Fine		5/3
116	,,	,,	Medium		5/3
117	,,	,,	Coarse		5/3
110	7×2×1	,,	Comb.		5/3
133	,,	,,	Fine		4/6
134	,,	,,	Medium		4/6
135	,,	,,	Coarse		4/6
109	6×2×1	,,	Comb.		4/6
158	,,	,,	Ex. Fine		4/6
121	,,	,,	Fine		4/–
122	,,	,,	Medium		4/–
123	,,	,,	Coarse		4/–
157	8×2×$\frac{3}{4}$	,,	Ex. Fine	No. 2	5/3
118	,,	,,	Fine		4/9
119	,,	,,	Medium		4/–
111	5×2×$\frac{3}{4}$	,,	Comb.		3/6
148	8×1$\frac{3}{4}$×1$\frac{1}{4}$	,,	Med. Fine	No. 3	6/3
159	6×2×$\frac{5}{8}$	,,	Ex. Fine	No. 4	3/6
124	,,	,,	Fine		3/3
125	,,	,,	Medium		3/3
136	5×2×$\frac{5}{8}$	,,	Fine		2/9
137	,,	,,	Medium		2/9
195	2$\frac{1}{2}$×2$\frac{1}{2}$×$\frac{1}{2}$	Axe	Medium	No. 5	1/6
142	4×1$\frac{1}{2}$×$\frac{1}{2}$	Bench	Fine	No. 6	2/3
143	,,	,,	Medium		2/3
130	6×1$\frac{1}{2}$×$\frac{1}{2}$	,,	Fine	No. 7	2/6
131	,,	,,	Medium		2/6
194	3×1$\frac{1}{2}$×$\frac{1}{2}$	Axe	,,		1/6
193	2$\frac{1}{2}$×1$\frac{1}{2}$×$\frac{1}{2}$	,,	,,		1/3
344F	6×1×$\frac{1}{2}$	Shear	Fine	No. 8	1/9
344M	,,	,,	Medium		1/9
344C	,,	,,	Coarse		1/9
292	4×1×$\frac{1}{2}$	Machinist	Fine		2/–
292M	,,	,,	Medium		2/–
149	3×$\frac{7}{8}$×$\frac{3}{8}$	Pocket Hone	Fine	No. 9	9d.
149L	,,	,,	,,		1/–
343F	6×$\frac{3}{4}$×$\frac{3}{8}$	Shear	Fine	No. 10	1/6
343M	,,	,,	Medium		1/6
343C	,,	,,	Coarse		1/6
345F	8×$\frac{3}{4}$×$\frac{3}{8}$	,,	Fine	No. 11	2/–
345M	,,	,,	Medium		2/–
345C	,,	,,	Coarse		2/–
37	3$\frac{1}{2}$×$\frac{3}{4}$×$\frac{1}{2}$	Tipped Tool	Fine	No. 12	1/9
38	,,	,, ,,	Medium		1/9
39	,,	,, ,,	Coarse		1/9
145	4×1×$\frac{1}{4}$	Bench	Fine	No. 13	1/6
146	,,	,,	Medium		1/6
174	6×2$\frac{1}{4}$×$\frac{3}{4}$–$\frac{3}{8}$	Slip	Fine	No. 14	4/–
175	,,	,,	Medium		4/–
176	,,	,,	Coarse		4/–
154	4$\frac{1}{2}$×2$\frac{1}{2}$×$\frac{5}{8}$–$\frac{5}{16}$	,,	Ex. Fine	No. 15	3/6
180	,,	,,	Fine		3/3
181	,,	,,	Medium		3/3
155	4$\frac{1}{2}$×1$\frac{1}{2}$×$\frac{1}{2}$–$\frac{3}{16}$	,,	Ex. Fine	No. 16	2/9
183	,,	,,	Fine		2/3
184	,,	,,	Medium		2/3
185	,,	,,	Coarse		2/3
177	4$\frac{1}{2}$×1$\frac{1}{2}$×$\frac{1}{2}$–$\frac{1}{16}$	,,	Fine	No. 17	2/3
178	,,	,,	Medium		2/3
179	,,	,,	Coarse		2/3
186	4×1×$\frac{7}{16}$–$\frac{3}{16}$	,,	Fine	No. 18	1/9
187	,,	,,	Medium		1/9

List No.	Size, Ins.	Description	Grade	Shape	Price Each
199	6×1$\frac{3}{8}$×$\frac{3}{8}$	Blacksmith	Medium	No. 19	1/6
112	4×1$\frac{3}{4}$×$\frac{5}{8}$	Bench	Comb.	No. 25	3/–
166	4×1$\frac{1}{2}$×$\frac{1}{2}$	Gouge	Fine	No. 26	2/9
167	,,	,,	Medium		2/9
80	2$\frac{1}{2}$×$\frac{7}{8}$×$\frac{5}{16}$	Carver's Slip	Fine	No. 27	1/6
81	,,	,,	Med. Fine		1/6
82	,,	,,	Medium		1/6
83	,,	,,	Fine	No. 28	1/6
84	,,	,,	Med. Fine		1/6
85	,,	,,	Medium		1/6
86	,,	,,	Fine	No. 29	1/6
87	,,	,,	Med. Fine		1/6
88	,,	,,	Medium		1/6
89	,,	,,	Fine	No. 30	1/6
90	,,	,,	Med. Fine		1/6
91	,,	,,	Medium		1/6
439F	5×1×$\frac{5}{16}$	Reamer	Fine	No. 31	2/–
439M	,,	,,	Medium		2/–
196	3" diam. $\frac{5}{8}$" thick	Axe	Comb.	No. 32	2/–
289	4" diam. 1$\frac{1}{2}$" thick	Knife	,,	No. 33	7/–
332	3$\frac{1}{2}$×3$\frac{1}{2}$×1$\frac{1}{2}$	,,	,,	No. 34	7/–
107	4" diam. 1" thick	Bench	,,	No. 35	4/6
300	4×$\frac{1}{2}$×$\frac{1}{16}$	Silversmith	Fine	No. 36	2/9
301	,,	,,	Med. Fine		2/9
302	,,	,,	Medium		2/9
303	4×$\frac{1}{2}$–$\frac{1}{4}$×$\frac{3}{32}$–$\frac{1}{64}$	,,	Fine	No. 37	2/9
304	,,	,,	Med. Fine		2/9
305	,,	,,	Medium		2/9
306	4×$\frac{5}{16}$×$\frac{3}{32}$–$\frac{1}{16}$	,,	Fine	No. 38	2/9
307	,,	,,	Med. Fine		2/9
308	,,	,,	Medium		2/9
309	4×$\frac{1}{2}$–$\frac{5}{32}$×$\frac{1}{4}$–$\frac{1}{8}$	,,	Fine	No 39	2/9
310	,,	,,	Med. Fine		2/9
311	,,	,,	Medium		2/9
312	4×$\frac{7}{16}$–$\frac{1}{16}$×$\frac{3}{16}$–$\frac{1}{16}$	,,	Fine	No. 40	2/9
313	,,	,,	Med. Fine		2/9
314	,,	,,	Medium		2/9
315	4×$\frac{3}{8}$–$\frac{1}{8}$×$\frac{3}{16}$–$\frac{1}{16}$	,,	Fine	No. 41	2/9
316	,,	,,	Med. Fine		2/9
317	,,	,,	Medium		2/9
318	4×$\frac{1}{2}$×$\frac{3}{16}$–$\frac{3}{32}$	,,	Fine	No. 42	2/9
319	,,	,,	Med. Fine		2/9
320	,,	,,	Medium		2/9
321	3$\frac{1}{2}$×$\frac{7}{16}$–$\frac{3}{32}$	,,	Fine	No. 43	2/9
322	,,	,,	Med. Fine		2/9
323	,,	,,	Medium		2/9
334	4×$\frac{1}{2}$–$\frac{1}{4}$	,,	Fine	No. 44	2/9
335	,,	,,	Medium		2/9
336	,,	,,	Coarse		2/9
337	4×$\frac{1}{2}$–$\frac{1}{4}$	,,	Fine	No. 45	2/9
338	,,	,,	Medium		2/9
339	,,	,,	Coarse		2/9
340	4×$\frac{5}{16}$×$\frac{3}{16}$	,,	Fine	No. 46	2/9
341	,,	,,	Medium		2/9
342	,,	,,	Coarse		2/9
97	3" Long	Points	Fine	No. 47	2/9
98	,,	,,	Medium		2/9
99	,,	,,	Coarse		2/9

Aloxite Oil-filled Stones

108A	8×2×1	Bench	Comb.	No. 1	6/3
115A	,,	,,	Fine		5/3
116A	,,	,,	Medium		5/3
134A	7×2×1	,,	,,		4/6
109A	6×2×1	,,	Comb.		4/6
148A	8×1$\frac{3}{4}$×1$\frac{1}{4}$	,,	Medium	No. 3	6/3
124A	6×2×$\frac{5}{8}$	,,	Fine	No. 4	3/3
125A	,,	,,	Medium		3/3
292AF	4×1×$\frac{1}{2}$	Machinist	Fine	No. 8	2/–
292A	,,	,,	Medium		2/–
183A	4$\frac{1}{2}$×1$\frac{1}{2}$×$\frac{1}{2}$–$\frac{3}{16}$	Slip	Fine	No. 16	2/3
184A	,,	,,	Medium		2/3
178A	4$\frac{1}{2}$×1$\frac{1}{2}$×$\frac{1}{2}$–$\frac{1}{16}$	,,	Medium	No. 17	2/3
15A	6×2$\frac{1}{2}$×1$\frac{5}{16}$–$\frac{3}{16}$	Gouge Slip	Special Fine	No. 24	5/3

Carborundum and Aloxite Sticks

Price Each, Finished

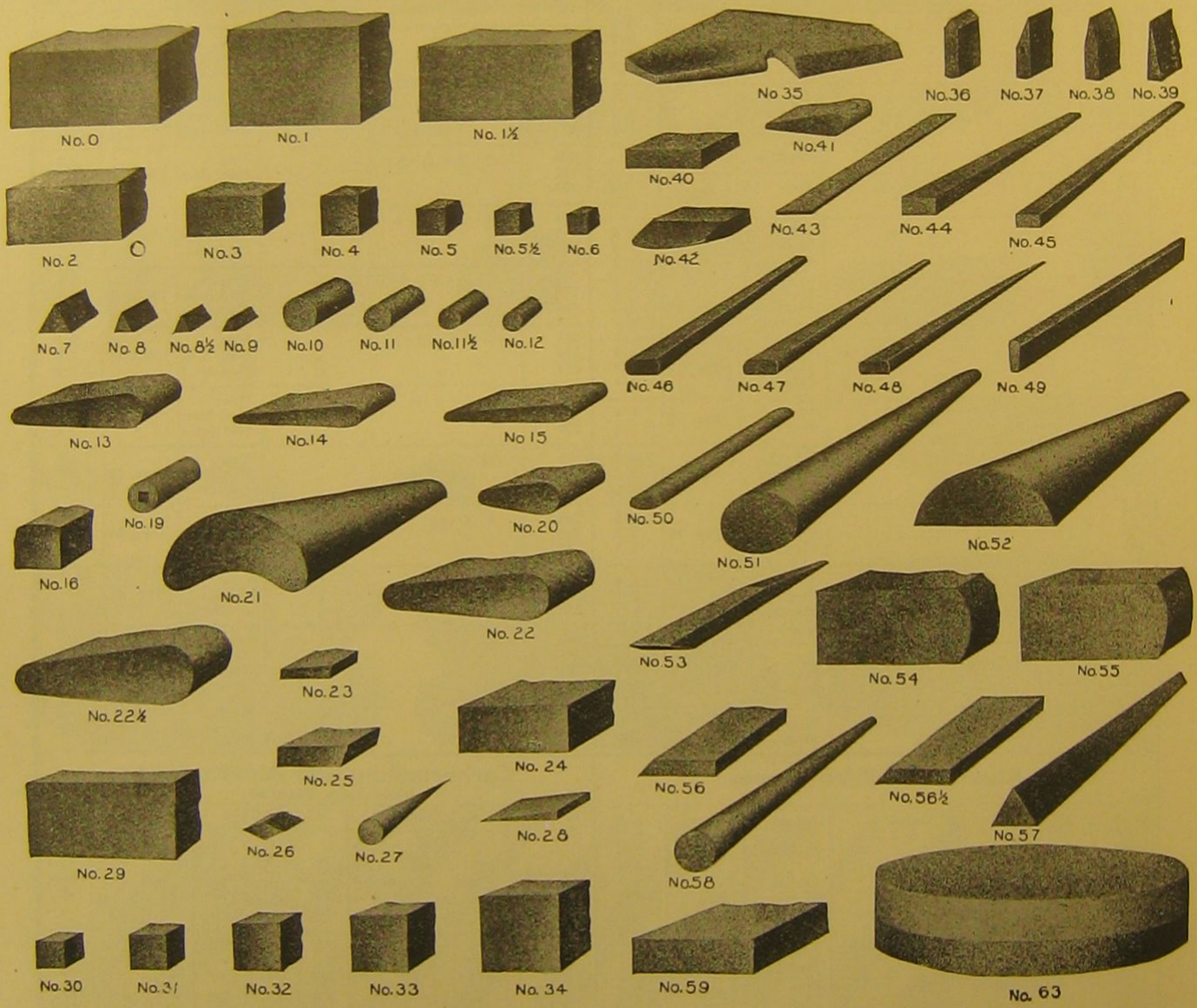
Thickness	4" LENGTH			6" LENGTH			8" LENGTH		
	□ Shape 20	△ Shape 21 ⌓ Shape 22	○ Shape 23	□ Shape 20	△ Shape 21 ⌓ Shape 22	○ Shape 23	□ Shape 20	△ Shape 21 ⌓ Shape 22	○ Shape 23
$\frac{1}{4}$"	1/9	2/3	2/6	2/6	3/–	3/6	—	—	—
$\frac{5}{16}$"	1/9	2/3	2/6	—	—	—	—	—	—
$\frac{3}{8}$"	1/9	2/3	2/6	2/6	3/–	3/6	—	—	—
$\frac{1}{2}$"	1/9	2/3	2/6	2/6	3/–	3/6	3/9	4/3	5/–
$\frac{5}{8}$"	2/–	2/6	2/9	2/9	3/6	3/9	4/–	4/9	5/3
$\frac{3}{4}$"	2/–	2/6	2/9	2/9	3/6	3/9	4/–	4/9	5/3
1"	2/3	2/9	3/–	3/–	3/9	4/–	4/3	5/–	5/6

IMPORTANT—PLEASE ORDER BY LIST NUMBER

India Oilstones (British Made)

India Oilstones are made from "Alundum," a remarkable reproduction of one of the minerals of nature—corundum. The advantages of "Alundum" over every other known abrasive material lie in its peculiar combination of hardness, sharpness, and temper. By temper is meant strength of grain and the character of its fracture under sharpening pressure.

India Stones, therefore, possess the characteristics of hardness, sharpness, and toughness, and, in addition to these qualities, they also possess absolute uniformity. They cut more rapidly, last longer, and keep a better surface than any other artificial stone, and are a necessary factor wherever edge tools are used. They are especially adaptable for the quick sharpening of all kinds of machinists' tools made of modern tool steels, such as scrapers, taps, reamers, milling cutters, lathe and planer tools.



For dimensions and prices of India Oilstones, see opposite page.

OILSTONES

For Illustration of shapes, and description, see previous page

India Oilstones, Sizes and Prices

Shape	Dimensions	Price Each Coarse, Medium and Fine
00	9×2 ×1	9/5
01	9×1¾×1¼	10/5
0	8×2 ×1	6/3
0	8×2 ×1 Combination	8/4
1	8×1¾×1¼	7/4
1	8×1¾×1¼ Combination	9/5
1½	7×2 ×1	5/3
1½	7×2 ×1 Combination	7/4
2	6×1⅝×¾	4/2
2	6×1⅝×¾ Combination	5/8
3	4×1 ×½	2/6
3	4×1 ×½ Combination	3/7
4	Square File 4×½	2/1
5	Square File 4×⅜	2/1
5½	Square File 4×5/16	2/1
6	Square File 4×¼	2/1
7	Triangular File 4×½	2/9
8	Triangular File 4×⅜	2/9
8½	Triangular File 4×5/16	2/9
9	Triangular File 4×¼	2/9
10	Round File 4×½	2/11
11	Round File 4×⅜	2/11
11½	Round File 4×5/16	2/11
12	Round File 4×¼	2/11
13	4½×1¾×½×3/16	2/9
14	4½×1¾×⅜×⅛	2/9
15	4½×1¾×¼×1/16	2/9
16	8×⅝×⅝	4/2
19	Engravers' Pencils Fine one end, Medium the other	2/9
20	4 ×1 ×7/16×3/16	2/1
*21	6×2 ×1 ×⅜ ×3/16	6/3
22	4½×2⅛×⅝ ×5/16	4/2
22½	6 ×2¼×¾ ×⅜	5/3
23	3½×¾ ×3/16×⅛	1/8
24	4½×1½×⅝	3/2
24	4½×1½×⅝ Combination	4/2
25	4½×1 ×5/16 Reamer Stone	1/8
26	4×9/16×3/16	3/9
27	3×5/16 Points	3/9
28	4×1×⅛	2/11
29	6×2×1	4/10
29	6×2×1 Combination	6/3
30	Square File 6×⅜	2/11
31	Square File 6×½	2/11
32	Square File 6×⅜	2/11
33	Square File 6×¾	3/7
34	Square File 6×1	3/7
35	Bath Universal Slip	—
36		
37	1 Set (4) Carvers' Slips	8/4
38	2¼×⅞×3/16	
39		
40	2×1×¼	1/6
41	5×1×5/16×3/32	2/1
42	4×1×¼	2/9
43	4×½×1/16	3/2
44	4×½ ×¼ ×5/16×⅛	3/2
45	4×5/16×⅜×5/16×1/16	3/2
46	4×½ ×¼ ×5/16×⅛	3/2
47	4×½ ×3/16×3/16×1/16	3/2
48	4×⅜ ×5/16×⅛ ×1/16	3/2
49	4×7/16×3/16×⅛	3/2
50	3½×7/16×3/16	3/2
51	Oval Plug 6×⅝×5/16	4/7
†52	Heel Breast Stone 6×2×⅜	2/11
53	Automobile Stone	2/9
53	Automobile Stone in Case	3/2
54	8×2 ×¾	6/3
54½	5×1½×½ High Round	4/2
55	4×1½×½	3/9
56	5×1 ×⅜ (Reamer Stone)	2/1
56½	6×1 ×¼ (Reamer Stone)	3/2
57	4× ½×¼	3/2
58	4× ½×¼	3/2
59	3×1½×½ Axe Stone, Coarse Grit only	1/6
60	Circular Axe Stone 3×⅝	3/2
**61	3½×1×⅜	–/10
62	Sportsmen's Stone 3×1⅜×½	4/2
63	Circular Comb 4×1	6/11
63	Above in Steel Box	11/1
64	Triangular File 6×½	3/7
65	Triangular File 6×⅜	4/-
66	Triangular File 6×¾	4/-
67	Triangular File 6×1	4/7
	Engravers' Chuck	4/2
	Points 1×⅛ per doz.	6/1
68	4½×¾×5/16	1/6

*No. 21 made in special fine only.
†No. 52 made in medium fine only.

Shapes 0, 1, 1½, 2, and 29 can be supplied in polished wooden boxes at a cost of **1/8** each extra.

Metal Boxes for **Shapes 0 and 1½** ... **4/2** each.
" " " " **2** " **29** ... **3/2** "

**A metal stand for counter display is given free of charge with an order for two dozen No. 61 Oilstones.

Three-in-One Oil (British Made)

This Oil is a composition of scientifically blended animal, mineral, and vegetable oils, and since it contains no grease it does not harden.

It can be used for all lubricating purposes, and its penetration into the pores of metal make it an excellent rust preventer.

Three-in-One Oil is also useful on furniture, as it dusts, cleans, and polishes at the same time.

Prices

In Cans, 1 ounce ... ... **–/8 each** 3 ounces ... ... **1/3 each**
In Bottles, 1 ounce ... **–/7 each** 3 ounces **1/3 each** 8 ounces ... **2/6** "
1 Gallon Can (American gallon measure) ... **18/9** (Made in U.S.A.)

VALVE GRINDING COMPOUND: OILSTONES, &c.

Carborundum Valve Grinding Compound (British Made)

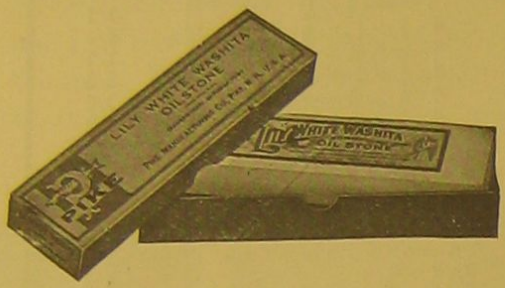
This water mixed Super-Speed Valve Grinding Compound, made by the Carborundum Company **leaves a smooth, uniformly ground,** positively power-tight valve seating without scores.

One grade both roughs and finishes and it gets its speed of cut from uniformly graded Carborundum grain, giving a finish equal to that of a grease mixed compound.

This Compound can be used with equally satisfactory results on Steam, Gas and Water-tight joints, and for any purpose where perfect bearing surfaces are required on brass, bronze, cast iron or steel.

No.	**490**	**491**	**492**	**493**
Size, ozs.	2	4	8	16
Price, per tin	**1/-**	**1/9**	**2/9**	**5/3**

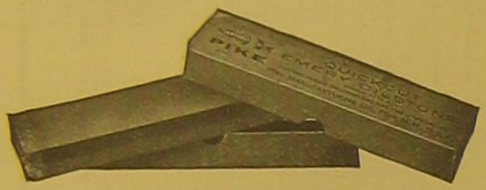
"Lily White" Washita Bench Stones (Made in U.S.A.)



"Lily White" Washita is a natural grit oilstone, uniform in texture, free from foreign substance, and nicely finished. It gives a very keen and lasting edge.

Length (approx.)	**4**	**5**	**6**	**7**	**8**	**ins.**
Width	2	2	2	2	2	,,
Thickness	¾–1	¾–1	¾–1	¾–1	¾–1	,,
Price	**3/4**	**4/2**	**5/-**	**5/10**	**6/8**	**each**

"Lily White" Stones weighing about 1 lb. each, size approximately 8×2×1 inches, packed in 14-lb. boxes, can also be supplied. **Price 4/- per lb.**



"Quickcut" Oilstones (Made in U.S.A.)

This excellent Stone is made from a good grade of emery; each Stone is a combination of coarse and fine grits.

Size, 8×2×1 inches. **Price ... ... 20/- per doz.**

Washita Stone No. 1

(Made in U.S.A.)

These Stones are too well known to need description.

Packed in cartons.

Price, 8×2×1 inches ... 5/- each

Washita No. 1 Stones, size approximately 8×2×1 inches, packed in 14-lb. boxes.

Price .. .. .. 3/- per lb.

Washita Slips, No. 1 (Made in U.S.A.)

With Round Edge.

Assorted—about 3 to 5 × 1¾ to 2×⅜ to ⅝ back×⅛ to 5/16 inch edge.

Packed in 5-lb. boxes. **6/6 per lb.**

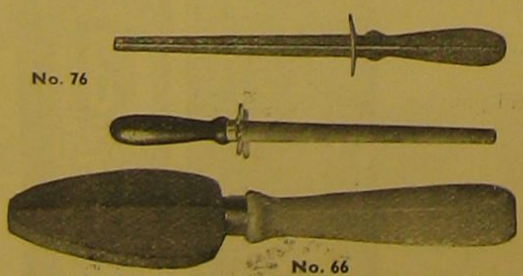
"West Baden" Washita Stones (Foreign)

This is a good quality stone, suitable for use where higher quality Washita Stones are not required.

Stones, Size 8×2×1 inches (approx. weight, 1¼ lbs.) in Cartons. ... ... **Price 3/9 each**

Slips, Round Edge, packed in 5 lb. boxes ... ... **Price 4/6 per lb.**

Carborundum Knife Sharpeners, Nos. 76 and 66



No. 76 is a shaft of Carborundum, firmly secured to handle by a steel rod, extending its entire length, giving strength and durability. An ideal sharpener for household knives. Length overall, 14 ins.

Price ... ... 1/6 each

No. 66. A compact and well-finished Sharpener, which with a few strokes will impart to stainless steel or ordinary knives a real cutting edge. Length overall is 7½ ins., whilst the handle is attractively finished with a multi-colour effect.

Price ... ... **15/- per doz.**

,, with ferruled xylonite handle 24/- ,,

SCYTHE STONES, REAPER FILES, ETC.

Carborundum and Aloxite Scythe Stones (British Made)

No. 203

No. 198

No. 191 C

Carborundum and Aloxite Scythe Stones cut fast and clean, and are impervious to moisture.

Each stone is symmetrical, exactly to size, and bears the manufacturers' label, giving it the seal of quality.

No. 203 A

No. 191 A

Carborundum

No. 198. 9¼ ins. long, flat, tapered, **Price** **12/– per doz.**
,, 190 10 ,, oval ,, **12/–** ,,
,, 191C. 12 ,, oval ,, **15/–** ,,
,, 203. 12 ,, round, tapered ,, **21/–** ,,

Aloxite

No. 191A. 12 ins. long, oval **Price** ... **12/– per doz.**
No. 203A. 12 ins. long, 1½ ins. diameter at centre, tapering to ¾ in. at ends. **Price** ... **15/– per doz.**

Combination Scythe Stone, No. 203 C

This new stone, which is similar in shape to No. 203, **consists of two equal portions of coarse and fine grits strongly joined together with waterproof cement.**
The stone is 12 ins. long, round, tapered. **The coarse end** is for sharpening long edges such as scythe blades, **the fine end** being more suited to sickles, hedging knives, etc.

Price ... ... **30/– per doz.**

Carborundum Reaper Files, Etc. (British Made)

No. 57

No. 59

For sharpening case-hardened reaper sections, scythes, chaff cutter knives, etc., they are invaluable to farmers. Also in the machine shop they are effective for dressing case-hardened metals and removing scale.
Fitted with strong hardwood handles, they are not affected by water, grease, or oil.

No. 75

No. 57. 14 ins. long, including handle, taper, bevel. **Price** **3/6 each**
No. 59. 13 ins. long, including handle, square. **Price** ... **4/–** ,,
No. 75. Combination Reaper File, similar to No. 57 Files, but one side has finer grit than the other. **Price** ... ... **4/6** ,,

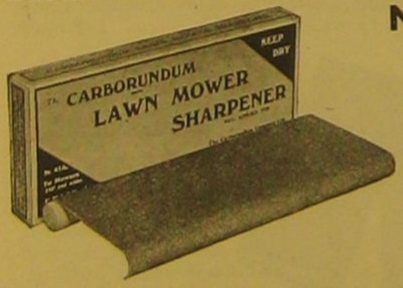
Carborundum Hone and Garden Stone No. 46 (British Made)

A real general-purpose Stone for a multiplicity of uses about the house and garden. Length overall, 10¼ ins.

Price ... ... **2/– each**

No. 46

Carborundum Lawn Mower Sharpener No. 41 A (British Made)



This device provides an easy means of quickly sharpening lawn mowers 10ins. and over.
For machines having cross-bar lugs, adapters are supplied.

No. 41A 11 ins. long. **Price** ... **2/– each**

Carborundum Scissors Sharpener No. 9 (British Made)

Provides a practical means for scissors sharpening.

Lay the inside edge of either blade against the metal wing of the sharpener. Lightly press against the stone which after rubbing backwards and forwards a few times produces a keen edge at the right bevel.

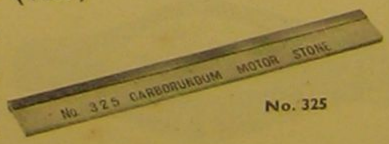
No. 9 Price 1/– each

Carborundum Sharpening Stones (British Made)

No. 500

No. 500. Boy Scout Combination Sharpening Stone. Size, 4 × 1 × ½ in.
Price ... ... **2/– each**

No. 325. Motor Stone. Size, 4 × ½ × 1/16 in. Fine. **Price** ... ... **1/9 each**



No. 325

RAZOR STROPS AND HONES

Carborundum Razor Strops (British Made)

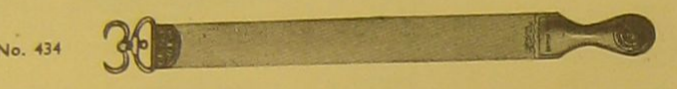
Made of the very best grade of selected leather. Finest hand-washed carborundum is worked in the corrugated sharpening side and the finishing side is of uniform texture and pliability to impart a keen, smooth edge to the razor.

No. 425. Single Horsehide Strop. Nickel swivel clutch. Leather Handle. Size 24¼ × 2¼ ins. **Price** ... ... **7/6 each**

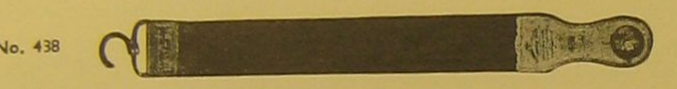
No. 479. Double. Hide Leather. Front Grey Velvet Hide. Nickel Swivel Clutch. Padded Grey Leather Handle. Size 25 × 2¼ ins. **Price** ... ... **7/6 each**

No. 455. Double. Back Canvas, Front Horsehide. Nickel Swivel Clutch. Padded Leather Handle. Size 22½ × 2 ins. **Price 6/3 each**

No. 450. Double. Leather both sides. Nickel Hook Fitting. Padded Leather Handle. Size 18 × 2 ins. **Price** ... ... **5/6 each**



No. 434. Double. Canvas and Brown Hide Leather. Nickel Swivel Clutch. Padded Leather Handle. Size 23½ × 2 ins. **Price**... **4/9 each**



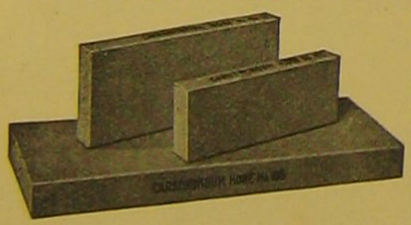
No. 488. Single. Brown Hide Leather. Nickel Swivel Hook fitting. Leather Handle. Size 22½ × 2½ ins. **Price** ... ... **4/6 each**

No. 457. Single. Black Hide Leather. Brass eyelet at top. Size 20½ × 2 ins. **Price** ... **3/6 each**

No. 463. Single. Black Hide Leather. Swivel Ring Fitting. Padded Leather Handle. Size 19 × 1⅝ ins. **Price** ... ... **2/9 each**

No. 444. Single for Valet Auto-Strop Safety Razors. Black Hide Leather. Black Corded Loop. Size 14 × 1½ ins....**Price** ... ... **1/9 each**

Carborundum Razor Hones



Made of extra fine, hand-washed Carborundum powder. Unexcelled for fast cutting qualities and for producing a keen, lasting edge.

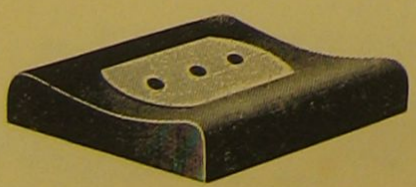
No.	Length, ins.	Width, ins.	Thickness, ins.	Price, each
101 A	5	2	½	**4/9**
102	4	1½	½	**2/9**
105	8	2½	¾	**9/9**

Aloxite Razor Hone

This Razor Hone is absolutely uniform throughout, is fast and clean cutting, and will give a keen, smooth, velvet-like edge quickly and easily.

No.	Length, ins.	Width, ins.	Thickness, ins.	Price, each
200	5	2	½	**3/6**

Aloxite Safety Blade Hone, No. 45 (British Made)



This Hone is of uniform grade and texture, made from finest abrasive powders, scientifically bonded to combine smoothness with fast cutting.
To sharpen place the blade in the hollow or concave side of the hone. A few **circular movements with extremely light pressure** brings the blade to a smooth shaving edge.

No. 45. Length 2½ ins., Width 1¾ ins. **Price** ... ... **2/- each**

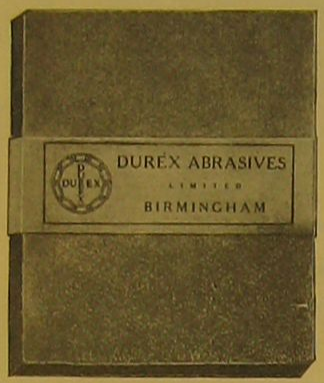
WATERPROOF ABRASIVE PAPERS

"Hydro-Durexsil" Paper

For wet rubbing down paint and varnish

Makes flawless under-coats—to perfect finish—in double-quick time

REG. TRADE MARK



Wet sanding and finishing of under-coats, lacquers, and varnishes, particularly in automobile coachwork, is an operation for which it is necessary to use Abrasive Waterproof Paper of the finest quality.

"HYDRO-DUREXSIL" Paper is used extensively, not only in the most important mass-production body-shops, but also in smaller coachbuilding establishments and repaint shops.

It is also being used for finishing other lacquered or painted surfaces, such as metal furniture, safes, office-equipment, machine tools, etc.

The abrasive is Silicon Carbide, the hardness of which exceeds that of any other substance except the diamond. Being a product of the electric furnace, it has a constant high standard of quality, and is specially treated and carefully coated to produce a Waterproof Paper which gives speed of cut, finish, and durability without scratching. It is absolutely waterproof, and will not shed its mineral.

The coarse numbers (60 to 100) are particularly adapted for rapid cutting of filler. The finer numbers (120 to 400), used for flatting, give a finish as nearly perfect as can be produced by any known means. Grades 320 and 400 are especially recommended for final and cellulose finishes.

Supplied in sheets, 9×11 ins.—24 sheets per quire—480 sheets per ream.

Backings:—"A" indicates light weight; "C" medium weight; "D" heavy weight.

Grit No.	**400**	**320**	**280**	**240**	**220**	**180**	**150**	**120**	**100**	**80**	**60**
Backing	A & C	A & C	A & C	A & C	C	C	C	D	D	D	D
Price per quire (for less than 1 ream)	5/6	5/6	5/6	5/6	5/6	5/6	5/6	5/9	6/3	8/-	10/-
Price per ream ...	97/-	97/-	97/-	97/-	97/-	97/-	97/-	102/-	112/-	142/9	175/9

Reams made of Assorted Grits are supplied at regular ream prices.

"Hydro-Flint" Paper

For damp rubbing down of all painted surfaces in the Decorating and Building trades.

This Paper has Three Outstanding Advantages:—

1. **Hygiene and Cleanliness.**

   Conclusive test has proved that damp rubbing down with "HYDRO-FLINT" is absolutely UNACCOMPANIED BY DUST. It is entirely unnecessary to disturb interiors or to use dust sheets. Nor are there any particles injurious to health liberated in the air.

2. **Cheapness, Ease, and Speed of Work.**

   Scientific coating of keen, fast-cutting grain renders it possible to sand greater surfaces in less time and with less effort than dry sanding, or the out-of-date method of pumice or brick. This alone makes it cheaper to use. Tests have proved that "HYDRO-FLINT" Paper will bring a painted surface to a condition satisfactory for repainting in approximately half the time required to prepare a similar surface with pumice and water.

3. **Finer Finish.**

   "HYDRO-FLINT" will not shed or cause scratching, and can be relied upon to produce that fineness of finish essential for satisfactory painted surfaces.

Supplied in sheets, 9×11 ins.—24 sheets per quire—480 sheets per ream.

Grit No.	**3/0**	**2/0**	**0**	**½**	**1**	**1½**	**2**
Price per quire (for less than 1 ream)	3/-	3/-	3/-	3/6	4/6	5/3	6/3
Price per ream	51/-	51/-	51/-	62/6	74/6	92/-	107/6

For Lacquer Rubbing Solution and Rubbing Pads, see page 252, 253.

ABRASIVE CLOTH

"Durexite" Cloth in Sheets and Rolls (British Made)

For Grinding and Polishing all classes of metals

"Durexite" Cloth is coated with purified Aluminium Oxide Grain, fused and crystallised at the high temperature of an electric furnace. **It is an abrasive of unequalled uniformity and hardness,** and is so resistant to crushing strain that it has great capacity for cutting hard and tough metals.

The cloth on which the grain is coated is specially treated to give minimum stretch and maximum adhesion, and because of its flexibility can be shaped and fitted around any tool to suit the purpose, without loss of grit or weakening of backing.

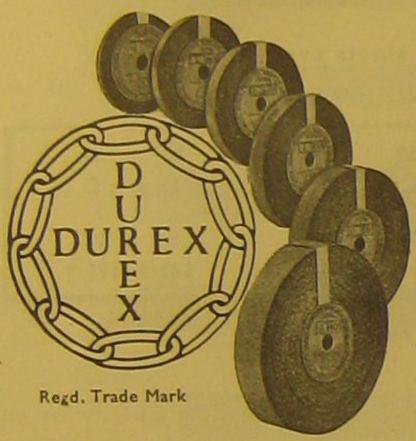
REG. TRADE MARK

Table of Grading Equivalents

Competitive Emery Grit No. ...	5	3½	3	2½	2	1½
"Durexite" Grit No.	**24**	**36**	**40**	**50**	**60**	**80**
Competitive Emery Grit No. ...	1	F	FF	C/0	1/0	2/0
"Durexite" Grit No.	**100**	**120**	**150**	**180**	**240**	**320**

"Durexite" Cloth, in Sheets 9 × 11 inches

Grit No.	320	240	180	150	120	100	80	60	50	40	36	24
Price per ream (480 sheets) ...	131/7	131/7	131/7	131/7	131/7	131/7	139/10	151/10	162/8	174/11	188/8	216/7
Price per quire (24 sheets) for less than 5 quires	7/7	7/7	7/7	7/7	7/7	7/7	8/-	8/9	9/4	10/1	10/10	12/5



"Durexite" Cloth Economy Rolls

Handily suspended above the bench, it is the work of an instant for the operator to cut off **just sufficient of the exact width** required for the job.
There is no waste through faulty tearing nor sheets left about to spoil, and finish is obtained better and quicker.

Per Roll of 50 yards

Width in Ins.	Grit Nos.						
	*320–100	80	60	50	40	36	24
½	4/10	5/1	5/4	5/8	5/11	6/2	6/9
¾	6/6	6/9	7/2	7/5	7/10	8/5	9/4
1	8/-	8/3	8/11	9/4	9/11	10/7	11/10
1½	11/2	11/7	12/5	13/2	14/-	15/-	16/9
2	14/2	14/10	15/11	16/11	18/-	19/3	21/10

*Covering Grits Nos. 320, 240, 180, 150, 120, and 100

"Durexite" Cloth in Rolls

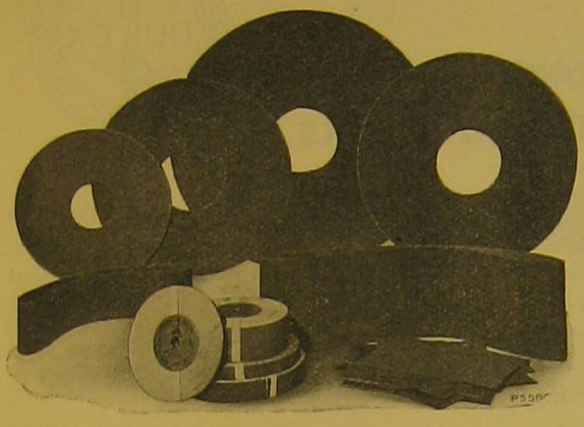
Generally used for belt sanding machines on tough and hard work, this product is made with a rugged coating of grain and glue to withstand service operating conditions.

Per Roll of 50 Yards

Width in Inches	Grit No.	*320–100	80	60	50	40	36	24
28 †Standard Widths	... ...	146/3	155/3	168/8	180/9	194/1	209/3	240/-
2⅛ to 2½ Slit Widths	... ...	14/7	15/6	16/9	17/11	19/2	20/7	23/5
2⅝ to 3 ,,	... ...	17/5	18/5	20/-	21/4	22/10	24/7	28/1
3⅛ to 3½ ,,	... ...	20/4	21/5	23/2	24/10	26/7	28/7	32/8
4 ,,	... ...	23/1	24/5	26/6	28/4	30/3	32/8	37/4
5 ,,	... ...	28/9	30/5	33/-	35/4	37/10	40/9	46/6
6 ,,	... ...	34/5	36/5	39/5	42/3	45/3	48/8	55/7
7 ,,	... ...	40/1	42/4	46/-	49/2	52/8	56/9	64/9
8 ,,	... ...	45/9	48/5	52/5	56/1	60/1	64/9	74/-
9 ,,	... ...	51/4	54/4	59/-	63/-	67/7	72/9	83/2
10 ,,	... ...	57/-	60/4	65/5	70/1	75/-	80/10	92/5
12 ,,	... ...	68/4	72/4	78/5	83/11	89/10	96/11	110/9
14 ,,	... ...	79/6	84/2	91/6	97/10	104/10	112/11	129/2
15 ,,	... ...	85/2	90/3	97/11	104/9	112/4	121/-	138/5
16 ,,	... ...	90/11	96/2	104/6	111/10	119/9	129/1	147/6
18 ,,	... ...	102/3	108/2	117/6	125/8	134/7	145/1	165/10
20 ,,	... ...	113/5	120/1	130/5	139/6	149/6	161/1	184/3
24 ,,	... ...	135/4	143/4	155/5	166/11	179/-	192/4	221/4

*These consist of 320, 240, 180, 150, 120, and 100.
Slit Widths are cut and trimmed to size. †Standard Width is as manufactured with untrimmed edges.

DISCS, DISC HOLDERS, ETC.



"Durexite" Cloth Discs "R" Weight

DUREX

REG. TRADE MARK

"Durexite," a purified Aluminium oxide, is an abrasive of unequalled uniformity and hardness, so resistant to crushing strain that it has great capacity for cutting hard and tough metals.

"Durexite" Cloth Discs are particularly effective on steel, iron, cast aluminium, and even cast brass.

In ordering Discs, please specify the outside diameter, the size of hole, together with grit number required. If the latter information is not available, please state the material to be ground and the finish required.

Table of Grading Equivalents

Competitive Emery Grit No. ...	6	5	4	3	2	1½
"Durexite" Grit No. ...	**16**	**20**	**30**	**40**	**60**	**80**

Price, per Disc, "R" Weight

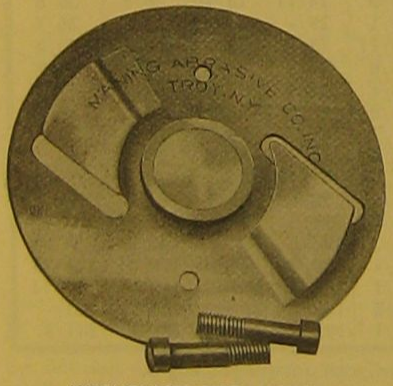
Diam. in Ins.	Grit No.						Diam. in ins.	Grit No.					
	80	60	40	30	20	16		80	60	40	30	20	16
6	/6	/6	/6	/9	/9	/9	24	3/8	3/8	3/11	4/3	4/5	4/8
8	/6	/6	/6	/9	/9	1/-	26	4/3	4/3	4/5	4/8	4/11	5/5
10	/9	/9	/9	1/-	1/-	1/-	28	4/8	4/8	4/11	5/2	5/5	6/2
12	1/-	1/-	1/-	1/-	1/-	1/3	30	5/5	5/5	5/8	5/10	6/2	6/11
14	1/3	1/3	1/3	1/6	1/6	1/6	32	6/2	6/2	6/7	7/4	7/7	8/4
15	1/6	1/6	1/6	1/11	1/11	2/2	36	8/4	8/4	8/7	9/8	10/1	11/3
16	1/9	1/9	1/9	2/2	2/2	2/6	40	10/10	10/10	11/3	13/-	13/9	15/3
18	2/2	2/2	2/2	2/6	2/6	2/9	48	14/6	14/6	15/3	16/6	17/3	18/8
20	2/9	2/9	2/9	2/11	3/3	3/3	53	18/-	18/-	18/8	20/8	21/8	23/5
22	3/3	3/3	3/3	3/8	3/11	3/11	60	23/5	23/5	24/7	26/9	28/1	30/3

For paper and other weight discs cut from roll stock—Prices on application.

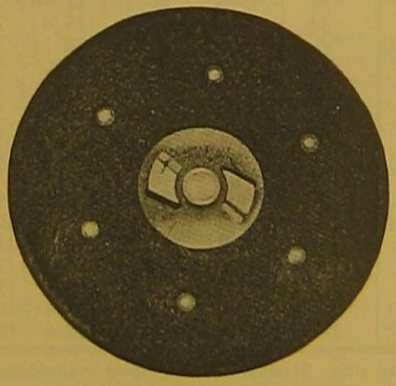
"Durex" Disc Cement

"Durex" Disc Cement is ready for use without heating and will securely hold the discs on the disc plates.

Price ... ... per ½ gallon, 5/–; per gallon, 8/–



WRENCHLESS DISC HOLDER



SANDING PAD WITH DISC HOLDER IN POSITION READY TO RECEIVE "DUREX" DISC

Manning Wrenchless Disc Holders (Made in U.S.A.)

Wrenchless Disc Holders are recommended for all flat type discs. **The wings of the holder slip through the slots in the disc,** and hold it securely on to the pad. This principle does away with the need for wrenches in attaching or removing the disc.

Price per Holder ... 7/6 each

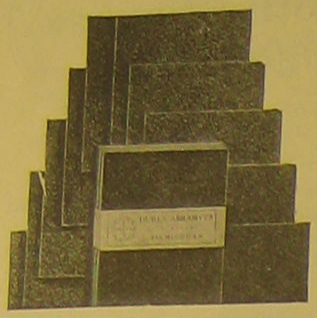
"Durexite" and "Durexsil" Fibre Combination Discs

Designed for use on all types of flexible shaft Disc Sanding Machinery, they prove extremely durable, fast, and free cutting, and are supplied with slotted centres for use with the Wrenchless Disc Holder. "DUREXITE" is generally used on the surfacing of high tensile steels, malleables, etc., whilst "DUREXSIL" gives entire satisfaction on non-ferrous metals, stone and composition surfaces.

Grit No.	120	80	50	36	24	16	*16 R
Price per 100—Flat Shape							
5 in. diam.	49/9	49/9	55/6	59/6	60/9	—	78/3
7 in. diam.	57/5	57/5	64/2	68/8	70/1	90/4	130/3
9¼ in. diam.	76/6	76/6	85/6	91/5	93/6	120/4	173/9
Price per 100—Depressed Centre							
7 in. diam.	113/8	113/8	124/11	132/7	135/-	169/1	236/9
9¼ in. diam.	151/5	151/5	166/8	176/5	180/1	225/1	315/1

*No. 16 R Discs have same size grain as No. 16, but are more heavily coated to withstand extreme roughing operations.

EMERY CLOTH & LACQUER SOLUTION



"Durexsil" Paper and Cloth Sheets

(British Made)

DUREX — REG TRADE MARK

"Durexsil" grain, although so hard and sharp, is somewhat brittle, and has therefore proved most effective in the sanding or surfacing of fibre, asbestos, and other composition surfaces, as well as marble, artificial stone, and similar substances. **Supplied with paper or cloth backings** in sheet or roll form.

"Durexsil" Paper Sheets

9×11 ins. "E" Weight only.

Grit No. ...	*400–100	80	60	50
Per ream (480 sheets)	70/1	77/11	90/5	102/10
Per quire (24 sheets) for less than 10 quires	4/–	4/6	5/2	5/11

*Covering Grits Nos. 400, 320, 280, 240, 220, 180, 150, 120, and 100.

"Durexsil" Cloth Sheets

9×11 ins. Grits 320 to 220, "J" weight only; Grits 180 to 100, "J" or "X" weight. Grits 80 and coarser, "X" weight only.

Grit No.	*320–100	80	60	50	40	36	30	24
Per ream (480 sheets) ...	144/2	153/1	166/4	178/2	191/7	206/7	221/5	237/2
Per quire (24 sheets) for less than 5 quires—	8/4	8/10	9/7	10/3	11/–	11/11	12/9	13/8

*Covering Grits Nos. 320, 240, 220, 180, 150, 120, and 100.

"Durexsil" Paper Rolls

Price, per Roll of 50 Yards

Grit No.	*400–100	80	60	50	40
Width in inches.					
Standard. 24	63/11	70/9	82/-	93/6	106/-
Slit. 1	3/7	3/11	4/4	4/10	5/5
1½	5/-	5/5	6/3	7/-	7/9
2	6/7	7/2	8/1	9/2	10/3
2½	7/11	8/8	10/-	11/3	12/7
3	9/6	10/5	11/10	13/5	15/1
3½	10/11	12/-	13/9	15/7	17/5
4	12/6	13/9	15/7	17/7	19/11
5	15/5	16/10	19/4	22/-	24/7
6	18/5	20/1	23/1	26/2	29/5
7	21/4	23/4	26/10	30/5	34/3
8	24/4	26/8	30/8	34/9	39/1
9	27/3	29/11	34/5	38/11	43/11
10	30/3	33/2	38/2	43/2	48/9
12	36/2	39/7	45/8	51/9	58/3
14	41/11	46/2	53/2	60/4	67/11
15	44/11	49/5	56/11	64/6	72/9
16	47/10	52/8	60/7	68/9	77/7
18	53/9	59/3	68/1	77/4	87/3
20	59/8	65/9	75/9	85/10	96/11

"Durexsil" Cloth Rolls

Price, per Roll of 50 Yards

Grit No.	*320–100	80	60	50	40	36	30	24
Width in inches.								
Standard. 28	159/6	169/5	184/-	197/2	211/9	228/3	247/6	261/10
Slit. 1	8/-	8/3	8/11	9/4	9/11	10/7	11/2	11/10
1½	11/2	11/7	12/5	13/2	14/-	15/-	15/10	16/9
2	14/2	14/10	15/11	16/11	18/-	19/3	20/6	21/10
2½	15/11	16/11	18/3	19/6	20/11	22/5	24/1	25/7
3	19/-	20/1	21/10	23/3	24/11	26/10	28/9	30/8
3½	22/2	23/4	25/4	27/1	29/-	31/3	33/5	35/7
4	25/2	26/8	28/11	30/11	33/-	35/7	38/1	40/8
5	31/4	33/2	36/-	38/6	41/3	44/5	47/5	50/9
6	37/6	39/9	43/-	46/1	49/4	53/1	56/9	60/8
7	43/9	46/2	50/2	53/8	57/6	61/11	66/3	70/8
8	49/11	52/10	57/2	61/2	65/7	70/8	75/8	80/9
9	56/-	59/3	64/4	68/9	73/8	79/4	85/-	90/9
10	62/2	65/10	71/4	76/5	81/10	88/2	94/4	100/9
12	74/6	78/11	85/6	91/7	98/-	105/9	113/2	120/10
14	86/9	91/10	99/10	106/8	114/5	123/2	131/10	140/11
15	92/11	98/5	106/10	114/3	122/6	132/-	141/3	151/-
16	99/2	104/11	114/-	122/-	130/8	140/10	150/8	160/11
18	111/6	118/-	128/2	137/1	146/10	158/3	169/5	180/11
20	123/9	131/-	142/4	152/3	163/1	175/9	188/1	201/-
24	147/8	156/4	169/6	182/1	195/3	209/10	227/7	241/5

Slit Widths are cut and trimmed to size. Standard Width is as manufactured with untrimmed edges.

"Durex" Emery Cloth, in Sheets 8½ by 11½ inches

"Durex" Grit No.	180	150	120	100	90	80	70	60	40
Competitive Emery Nos.	C/O	FF	F	1	—	1½	—	2	3
Price per ream (480 sheets)	83/–	83/–	83/–	83/–	83/–	83/–	96/–	96/–	108/–
,, per quire (24 sheets)	4/9	4/9	4/9	4/9	4/9	4/9	5/6	5/6	6/3

Lacquer Rubbing Solution

The Solution is sufficiently oily to lubricate the work, but is completely soluble in water. It keeps the paper free and clean, is non-inflammable, and does not injure the hands.

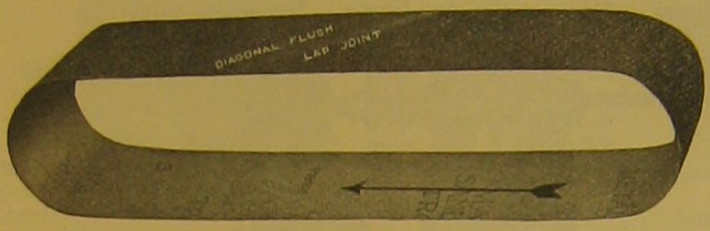
In 1-gallon cans—Price, 16/8 per American gallon. In 5-gallon drums—Price, 14/7 per American gallon.

LINISHER BANDS, RUBBING PADS, ETC.

"Durexite" Cloth Linisher Bands, with "Uniflow" Joint

DUREX

REG TRADE MARK



The unique construction of the "Uniflow" Joint on "Durexite" Cloth Linisher Bands is an important feature which eliminates all jumps to the band.
This type of joint gives great strength, and is so designed that stretching of the band when in use is reduced to a minimum.
These Bands possess all the advantages of endless Woven Bands, plus the economy resulting from the high-class scientifically coated cloth.
As compared with Emery, the "Durexite" Bands are fully **100 per cent better value,** as the abrasive lasts longer, due to its hardness, and also being sharper they cut faster. The Type A1 Linisher Machine takes a band 36 × 4 ins., and the Type B2 Machine, a band 60 × 8 ins.

Prices of "Durexite" Linisher Bands

"Durexite" Grit No.	320–100	80	60	50	40	36	24	
36 × 4 in. Bands, X weight	13/10	14/3	14/10	15/8	16/2	17/–	17/9	per doz.
60 × 8 in. ,, X weight	37/–	39/–	41/–	43/–	45/10	48/4	51/4	,,

"Durexite" Bands with "Uniflow" Joint can be supplied to suit various machines. **Prices and particulars on application.**

Table of Grading Equivalents given on page 250.

"Durexite" Cloth Bands with Ordinary Skive and Lap Joint

"Durexite" Grit No.	320–100	80	60	50	40	36	
36 × 4 in. Bands	8/10	9/2	9/8	10/2	10/8	11/3	per doz.
60 × 8 in. ,, ...	26/9	27/10	29/6	31/1	32/9	34/8	,,

Belts, in Paper or Cloth

Owing to the variety in sizes of Belts used, the matter of stocking is one of difficulty, and whilst we are always willing to furnish belts to meet customers' requirements, we would recommend that where possible belts be made up by customers themselves.
This is quite a simple operation. Obtain a roll of paper or cloth of the desired width and grit, cut a suitable length, then make a butt joint by accurately cutting the ends to a 45 degree diagonal and gluing a calico or long-cloth strip on the back. After gluing, the joint should be quickly put under strong pressure for a short time and then hung up to dry before use.
Such joints are satisfactory for woodworking, but not for metal work or flat surfacing machines.

Belt Joints

The prices of belts jointed ready for use may be ascertained by employing the following formula:—
The length of belt in feet (to nearest 3 inches) multiplied by ·084 and then multiplied by Net Price of roll of required width, grit, and type plus joining charge, etc., will give the net price per dozen belts.
Odd lengths of 1½, 4½, 7½, or 10½ inches take the price of next higher 3 inches, whilst sizes under these half-way dimensions would go down to the next 3, 6, 9, or 12 inches.

For Belts up to 2 in. wide	2/–	per doz.
,, 2⅛ in.—4 in. ,, ...	3/–	,,
,, 4⅛ in.—6 in. ,, ...	5/–	,,
,, 6⅛ in.—8 in. ,, ...	7/6	,,

For wider belts there is a proportionate increase.

The special "Uniflow" Joint can be supplied when required at slightly higher costs than shown above.

Rubbing Pads (British Made)

Made of high quality **Soft Rubber,** these pads are flexible in every direction. They are suitable for sanding metal, wood, and painting materials, and give a dead level surface, just comfortably at the hand, and take a strip of paper 3 × 11 ins. (¼ of a sheet). Paper is instantly fitted or removed and the use of a Rubbing Pad offers protection to the hand and complete use of 80 per cent of the abrasive paper.
Hard Rubber Pads, similar in details to those made of soft rubber, but for use in flatting and heavy rubbing, can be supplied when desired.

Price, either Soft or Hard Rubber Pad ... ... 3/– each

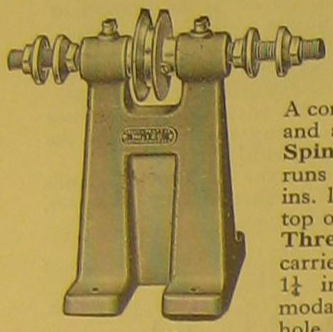
A hard felt Pad for use on old coats and filler can also be supplied. **Price ... 2/6 each**

Goodell-Pratt Grinding and Polishing Heads

(Made in U.S.A.)

With Full Bronze Wick-Oiled Bearings.

Grinding Head, No. 120

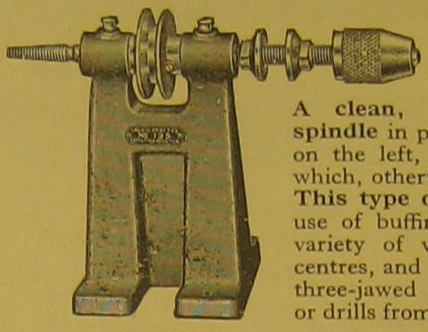


No. 120

A compact machine with solid frame and ample base.
Spindle is ½ inch diameter and runs in **two bronze bearings** 1¼ ins. long. It is oiled by two spring top oilers.
Threaded at both ends the spindle carries two sets of hardened flanges 1¼ ins. in diameter and accommodates wheels up to 4 × ¾ × ½ inch hole.
V-belt pulley is 2¼ ins. in diameter and drive can be from above, behind or below.
Finished grey and nickel-plated.

	Height	Base	Weight	Price
No. 120.	6 ins.	4⅛ × 4⅛ ins.	5¼ lbs.	**10/6 each**

Grinding Head, No. 125

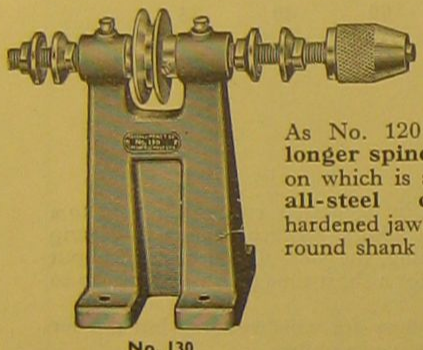


No. 125

A clean, deep taper thread spindle in place of the wheel arbor on the left, is fitted to this head, which, otherwise is as No. 120.
This type of spindle permits the use of buffing wheels and a great variety of wheels built on wood centres, and on the right an all-steel three-jawed chuck, that holds rods or drills from 0 to ⅜ inch in diameter

	Height	Base	Weight	Price
No. 125.	6 ins.	4⅛ × 4⅛ ins.	5 lbs.	**12/6 each**

Grinding Head, No. 130

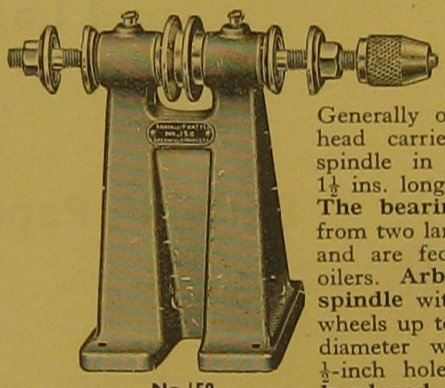


No. 130

As No. 120 above, **but with a longer spindle on the right side** on which is a nickelled and buffed **all-steel chuck** with three hardened jaws that holds 0 to ⅜ inch round shank drills or rods.

	Height	Base	Weight	Price
No. 130.	6 ins.	4⅛ × 4⅛ ins.	5½ lbs.	**13/3 each**

Grinding Head, No. 150

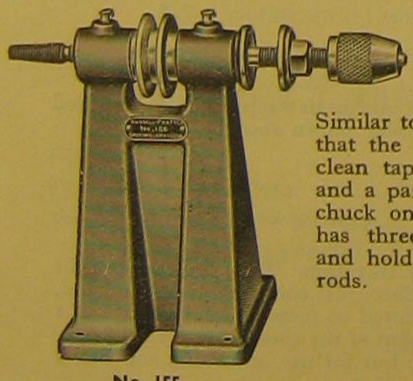


No. 150

Generally of heavier design this head carries a ¾ in. diameter spindle in two bronze bearings 1½ ins. long.
The bearings are wick-oiled from two large reservoirs in frame and are fed through spring top oilers. **Arbor on either end of spindle** with 1¾ inch flanges for wheels up to 6 inches or larger in diameter with 1-inch face and ½-inch hole. **Flange nuts are hardened. The V-belt pulley** is 2¼ inches in diameter drives from above, behind or below.

	Height	Base	Weight	Price
No. 150.	7½ ins.	5 × 5 ins.	8¾ lbs.	**21/– each**

Polishing Head, No. 155

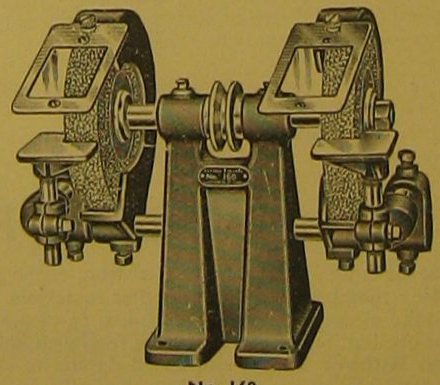


No. 155

Similar to No. 150 above except that the spindle carries a deep, clean taper thread on one end and a pair of wheel flanges and chuck on the other. **The chuck** has three hardened steel jaws and holds 0 to ⅜ inch drills or rods.

	Height	Base	Weight	Price
No. 155.	7½ ins.	5 × 5 ins.	9 lbs.	**27/– each**

Grinding Head, No. 160



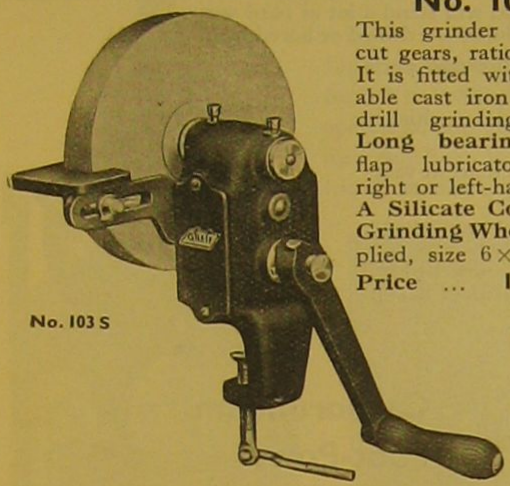
No. 160

This head is also similar to No. 150 except that it has a very substantial set of **work rests adjustable in three directions,** a set of heavy wheel guards, and removable glass spark guards set in metal frames.
Grinding wheels are not included with machine.

	Height	Base	Weight	Price
No. 160.	7½ ins.	5 × 5 ins.	25 lbs.	**41/6 each**

COMET Tool Grinders (Foreign)

No. 103S



No. 103 S

This grinder has steel cut gears, ratio 12 to 1. It is fitted with adjustable cast iron rest and drill grinding gauge. **Long bearings,** flip-flap lubricators, with right or left-hand drive. **A Silicate Corundum Grinding Wheel** is supplied, size 6×1 inches.

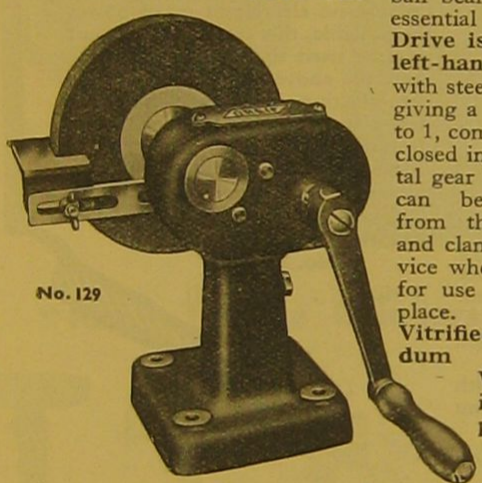
Price ... 15/– each

No. 108S

Mounted on a pedestal, from which grinding head can be removed for fitting into a vice. Right or left-hand Drive. **Fitted with steel cut Gears** giving a ratio of 12 to 1, completely enclosed in a horizontal gear box. **Silicate Corundum Grinding Wheel** is supplied, size 6×1 inches.

Price 17/6 each

No. 129

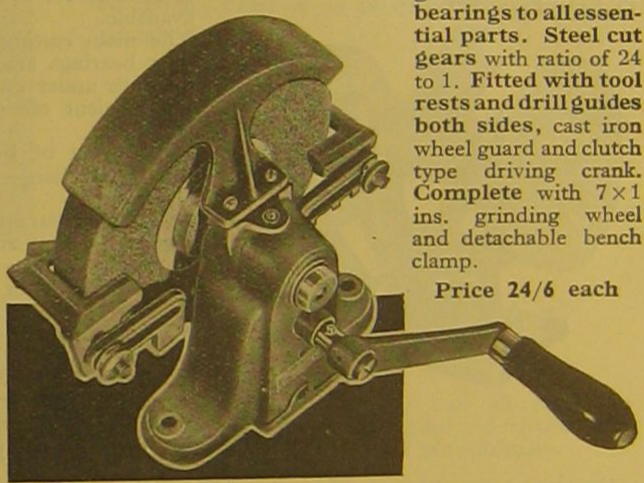


No. 129

This is a super Tool Grinder, fitted with ball bearings to all essential parts. **Drive is right or left-hand.** Fitted with steel cut gears, giving a ratio of 24 to 1, completely enclosed in a horizontal gear box, which can be removed from the pedestal and clamped into a vice when required for use in another place. **Vitrified Corundum Grinding Wheel,** 7×1 ins., is supplied.

Price 37/6 each

No. 105



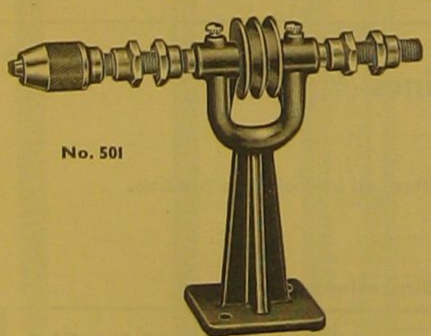
An extremely easy running **high speed grinder** with **ball bearings to all essential parts. Steel cut gears** with ratio of 24 to 1. **Fitted with tool rests and drill guides both sides,** cast iron wheel guard and clutch type driving crank. **Complete** with 7×1 ins. grinding wheel and detachable bench clamp.

Price 24/6 each

Mohawk-Shelburne Polishing Heads

(Made in U.S.A.)

No. 501

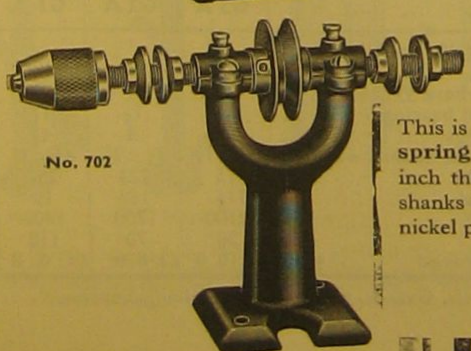


No. 501

The ½ inch spindle carries two sets of flanges for holding wheels up to ¾ inch wide, **also a three jaw chuck** for round shank drills up to ¼ inch diameter. **Pulley with 2 grooves** for V-belt is 1¾ ins. in diameter. Base finished black, pulley red enamelled. Height overall, 6¾ ins., Weight 2¼ lbs.

Price ... ... 7/– each

No. 702



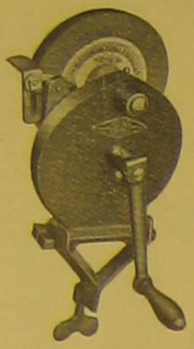
No. 702

This is a heavier machine than No. 501. **The ½ inch spindle is fitted with spring cover oil cups and adjustable bearings.** Two grinding wheels up to ⅞ inch thick are accommodated between the flanges and the **3 jaw chuck** holds round shanks up to ⅜ inch diam. **Pulley** takes Vee belt 2¼ ins. diam. Steel collars are nickel plated. Base finished black, pulley red enamelled. Height 7 ins., Weight, 4¼ lbs.

Price ... ... 13/9 each

TOOL GRINDERS

Carborundum "Niagara" Hand Grinders (British Made)



Carborundum "Niagara" Hand Bench Grinders are high quality tools made in five sizes. They are accurately made, perfectly fitted, and will stand a lot of hard wear.
All castings are of best grey cast iron, and all holes are drilled or bored from the solid.

Spindles are of machinery steel, the threaded parts being turned to fine limits.

The large gear is carefully generated by special machinery and runs efficiently and quietly.

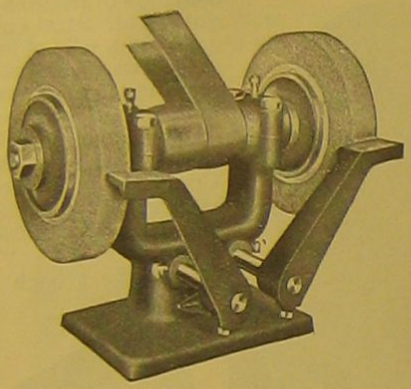
Adjustable tool rest enables grinding to be done at varying angles to the grinding wheel.

Detachable clamps are provided to allow grinders being screwed to bench where clamping is not convenient.
Finish—high quality stove enamel with nickel-plated exterior steel parts on Nos. 2 and 4. Each Grinder is supplied complete with Carborundum wheel.

Sizes and Prices

Model	Type E	No. 1	No. 2	No. 3	No. 4
Size of Wheel	3×¾	4×1	5×1¼	6×1	7×1¼ ins.
Prices ...		11/6	17/6	22/6	27/6	32/6 each

Carborundum Power Grinder Head, No. 5 (British Made)

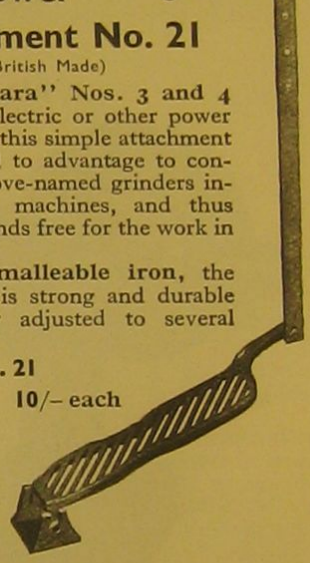


This is a very sturdy Machine and is suitable for use where power is available.
The main casting is of iron; ring oiler bearings are fitted with large oil wells under the bearings, ensuring efficient oiling of their whole length.
Spindle is of best grade steel fitted with large diameter flanges and nuts.
A large clearance is provided under the fast and loose pulleys to permit angular drive from floor level at back or any convenient height.
Nicely finished—stove enamelled with nickel-plated parts.
Each grinder head is supplied with a coarse and fine Carborundum wheel, 7 ins. diam. × 1¼ ins. thick.

No. 5 ... ... Price, 55/– each

Carborundum Foot-Power Attachment No. 21

(British Made)



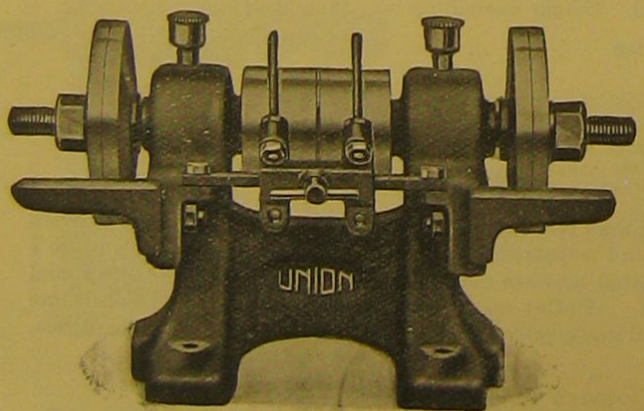
For "Niagara" Nos. 3 and 4
Where no electric or other power is available, this simple attachment can be used to advantage to convert the above-named grinders into effective machines, and thus leave the hands free for the work in progress.
Made of malleable iron, the attachment is strong and durable and readily adjusted to several heights.

No. 21

Price ... 10/– each

"Union" Bench Grinding Machines (British Made)

These are low-priced, well-built Grinders for bench use.
Bearing Bushes are interchangeable and are of hard cast iron.
Bearings are self-oiling by means of dust-proof wick feed lubricators. Belt shifter can be locked in position.
Rests are adjustable and provision is made for fitting wheel guards at any time.

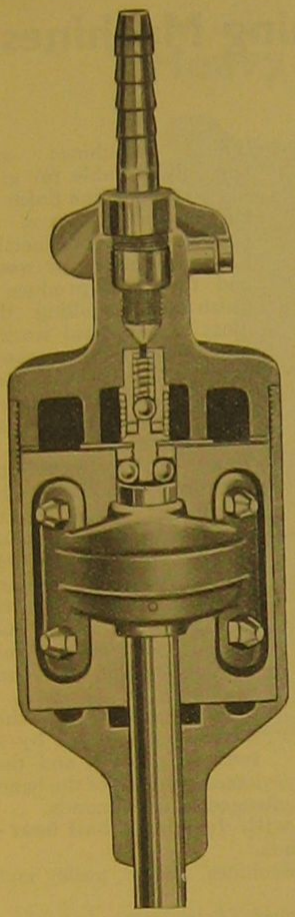


Dimensions and Prices

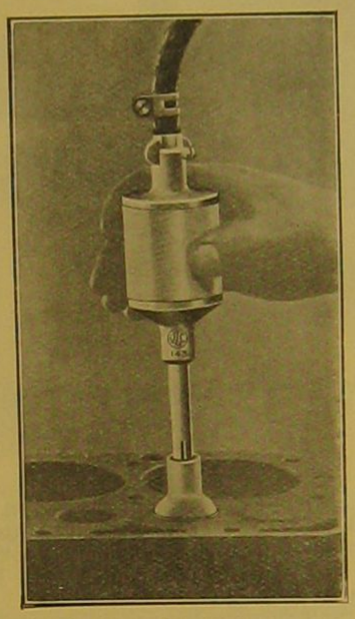
No.	G3 A	G2 A	G1 A
Size of Grinding Wheels, ins. diam. × width	10×1	12×1½	14×2
Size of Spindle where Wheel fits, ins.	¾	1	1¼
Size of Spindle in bearings ,,	⅞	1⅛	1⅜
Length of Bearings ... ... ,,	2¾	4	4½
Size of Pulleys, ins. diam. × width	2¾×1¾	3¾×2¼	4¾×2⅞
Length of Spindle ... ... ins.	15	22¾	25½
Centres of Wheel ... ... ,,	11¼	16½	19
Speed of Spindle ... ... r.p.m.	2100	1700	1400
Net Weight ... ... lbs.	28	70	118
Price, as illustrated ... each	**£1 10 0**	**£3 0 0**	**£4 0 0**

Stands, Wheels, Guards, etc., can be supplied as extras.

VLC Air-Operated Valve Grinder No. 143 (British Made)



Light pressure on the valve head opens the air inlet, and starts operation. Speed is variable from 0 to 2,000 strokes per minute. Lifting the tool off the valve head automatically stops operation, and prevents waste of air. It is powerful enough for largest tractor valves, yet uses only 2 cu. ft. of air per minute. Valve grinding time is cut by half. Supplied complete with 2 suction cups, 2 multiple heads for screwdriver slotted and pin-holed valve heads.



Smooth—When oscillating, there is practically no vibration at all. It grinds smoothly with absolutely no danger of scoring the valve seats.

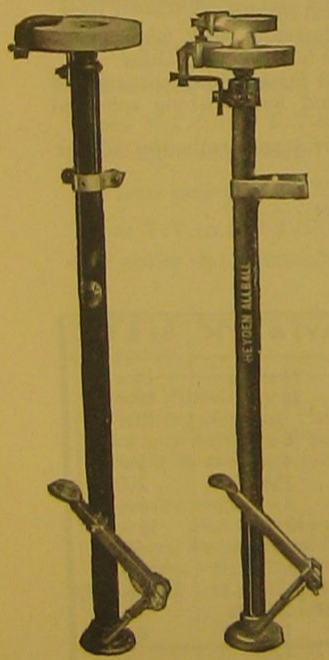
Finishes—It has been proved by experience, that the lighter the grinder the smoother the seat obtained, and thereby the better sealed valve. The finish obtained by this grinder eliminates any further grinding in by hand.

Simple—Extremely simple in operation and the small number of moving parts assures efficiency at all times. There is no complicated mechanism to get out of order.

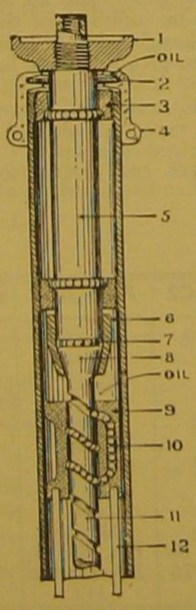
Weight, 1 lb. 6 ozs.

Price, No. 143 Air Operated Valve Grinder with Hose and 2 clips ... £3 12 0

"Rev" Treadle Grinders (British Made)



No. 1 No. 2



These are frictionless drive Grinders with high speed rotary motion, designed for surfacing and grinding tools of any size or length.

The Grinder is dust-proof, rigid, well balanced, and is easily fixed anywhere.

The gearless mechanism incorporates adjustable ball bearings, ball thrust and ball drive, and **1000 revolutions of the wheel are obtained from one treadle stroke.**

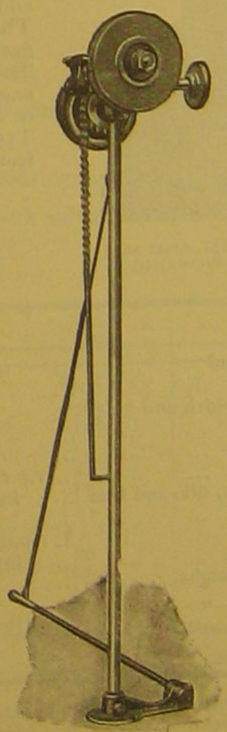
No. 1 Complete with 6 × 1 × ⅝ in. hole grinding wheel, adjustable clip, and rest.
Price £2 10 0 each

No. 2 Complete with 6 × 1 × ⅝ in. hole and 4-in. grinding wheels, adjustable clip, and rest.
Price £2 18 6 each

The Diagram shows:—1—Wheel flange screwed l.h. and ground true in position. 2—Felt washer. 3—Screwed adjustable ballrace. 4—Split cap locking No. 3. 5—Head spindle, bored and threaded r.h. for screw securing the wheel. 6-8—Steel cone clutch. 9-11—The 'Rev' Ball Drive. 12—Double rod connecting the driving sleeve (9)to treadle

"Union" Treadle Grinder

(British Made)



In this tool all gears are machine cut and friction units reduced to a minimum.

The sturdy head and bearing withstands shocks and vibration.

Grinding wheel is mounted between machine flanges and runs true on the spindle.

Drive is by treadle through chain and chain wheel, a suitable spring and **free wheel** is incorporated to effect return stroke. Gearing is enclosed.

Height, base to centre 42 ins.

Size grinding wheel 6 × 1 × ⅝ in. hole

Gear ratios ... 9 to 1

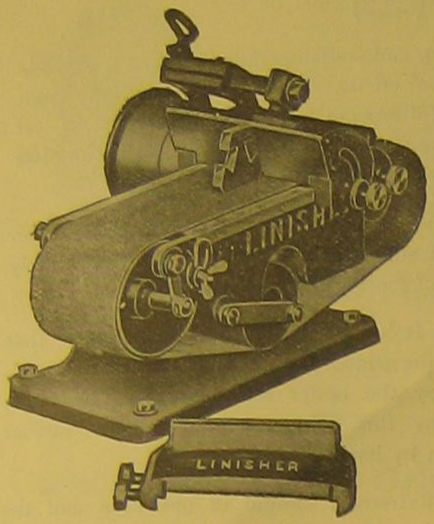
Net weight, complete 22 lbs.

Price, complete as illustrated £1 10 0

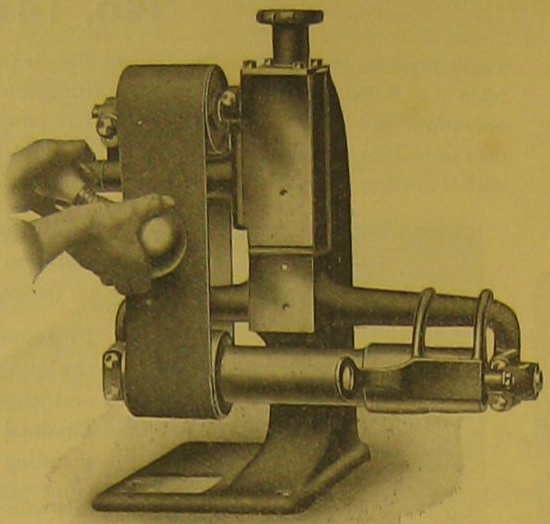
Extra for Twist Drill Grinding Attachment £1 0 0

Linisher Emery Band Grinding and Polishing Machines

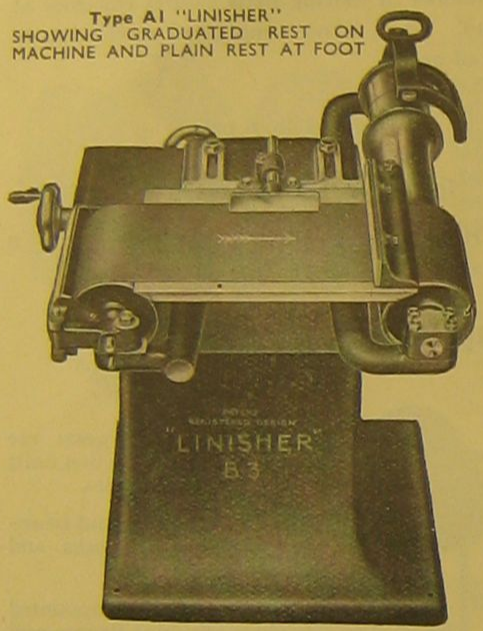
(British Made)



Type A1 "LINISHER" SHOWING GRADUATED REST ON MACHINE AND PLAIN REST AT FOOT



Type AV3 "LINISHER" WITH BAND AND WORK TABLES REMOVED AND SHOWING A SPHERICAL PART BEING GROUND



Type B3 "LINISHER" WITH REST AND SIDE FENCE IN POSITION FOR WORKING

These Machines are specially suitable for giving a straight line finish to flat, round, concave, or convex surfaces of metals, hard substances, or wood and they will produce a finish far excelling the most skilled hand work.

Abrasive Bands made from "Durexite" Cloth and with the "Uniflow" Joint are supplied with these machines.

They give excellent service, because the "Uniflow" Joint is of great strength, maintains smooth running, and reduces stretching. "Durexite" is a high-class artificial abrasive, harder and sharper than emery, and so lasts longer and cuts faster.

Undue slack in the band is taken up by a tension pulley, and the lateral position of the band can be changed whilst running. Bands can be changed in five seconds.

All tension and driven pulleys are fitted with dustproof ball bearings, and the spindles are supported at both ends.

Drive is by F. and L. pulley for A and B Machines, and F. pulley and countershaft for AC and BC Machines.

A "Saso" self-aligning and self-oiling countershaft is supplied.

Type A "Linishers" can be furnished with or without stands. In types A1 and AC1 the central bearing of the mainshaft is fitted with an oil-retaining bush 7 inches long.

Type 3 Machines are built with ball journal bearings throughout, and can be supplied as either horizontal or vertical machines.

The Vertical Machines are fitted with an adjustable work table, and a graduated inclinable rest can be supplied for the horizontal machine.

Table can be adjusted level with edge of band for grinding corners and angles, or removed entirely to give a flexible band for polishing spherical or domed surfaces.

Type "B" Floor Machine is heavy and powerful and embodies all the features of the smaller bench type "Linishers."

PRICES ON APPLICATION

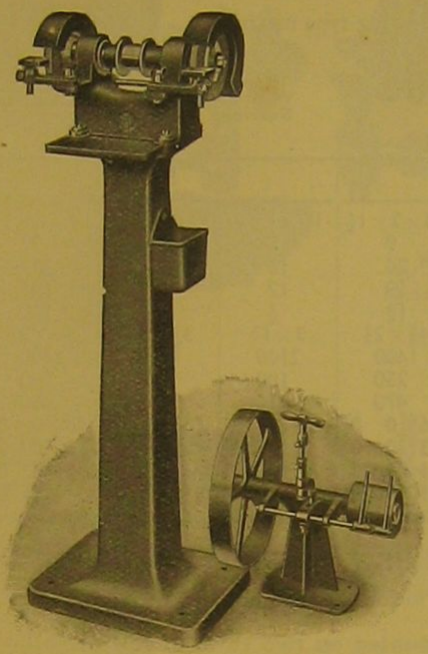
DIMENSIONS

Type	A1 & AC1	A2 & AC2	A3 & A3C	AV3 & AV3C	B3 & B3C
Table surface, machine ground ... ... ins.	$9\frac{1}{2}\times5\frac{9}{16}$	$9\frac{1}{2}\times5\frac{9}{16}$	$9\frac{1}{2}\times5\frac{9}{16}$	$9\frac{1}{2}\times5\frac{9}{16}$	$18\times11\frac{1}{8}$
Size of Grinding Band ... ... "	36×4	36×4	36×4	36×4	60×8
Graduated inclinable Rest, width and height "	$6\frac{1}{2}\times3$	$6\frac{1}{2}\times3$	$6\frac{1}{2}\times3$	—	12×3
Inclinable Work Table ... ... "	—	—	—	$6\times5\frac{1}{2}$	—
Band Pulleys, dia. and face ... ... "	$4\times4\frac{1}{4}$	$4\times4\frac{1}{4}$	$4\times4\frac{1}{4}$	$4\times4\frac{1}{4}$	6×9
" " speed, up to ... ... r.p.m.	1000	1500	2500	2500	2000
Countershaft, F. & L. Pulleys, dia. and face ... ins.	$4\times2\frac{3}{4}$	$4\times2\frac{3}{4}$	$4\times2\frac{3}{4}$	$4\times2\frac{3}{4}$	$6\times3\frac{1}{2}$
" F. Pulley ... ... "	12×2	12×2	12×2	12×2	16×3
" speed, up to ... ... r.p.m.	350	500	675	675	600
Driving Pulleys, dia. and face ... ... ins.	$4\frac{1}{4}\times2$	$3\frac{1}{4}\times2\frac{1}{4}$	$3\frac{1}{4}\times2\frac{1}{4}$	$3\frac{1}{4}\times2\frac{1}{4}$	$4\frac{3}{4}\times3$
Overall length, width, and height ... ... "	$17\times14\times10$	$17\times19\times10$	$18\times19\times10$	$14\frac{1}{2}\times19\times21$	$32\times36\times33$
Stand " " " ... ... "	$27\times22\times26$	$27\times22\times26$	$27\times22\times26$	$27\times22\times26$	—
Approx. weight, machine ... ... lbs.	60	90	112	140	670
" stand ... ... "	120	120	120	120	—
" countershaft ... ... "	60	60	60	60	120

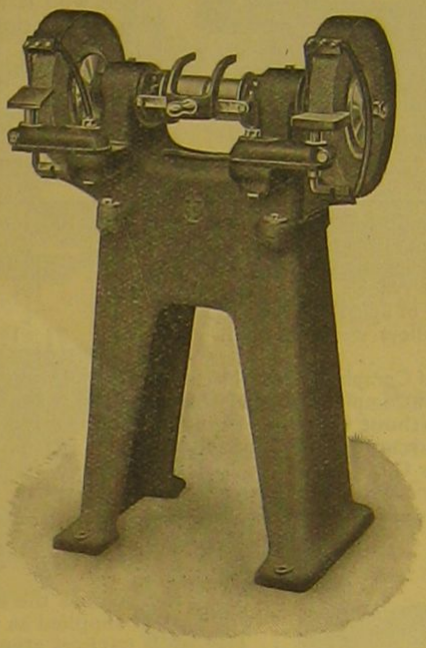
"Linisher" Type $A3\frac{1}{2}$ is identical with Type A3 except that it accommodates a band 36×6 ins. wide.

"Linisher" Type BV3 is a vertical type Floor Machine. It comprises the B3 head mounted on suitable stand and with tilting and adjustable work table.

Heavy Duty Bench and Floor Grinders (British Made)



T.T.6 GRINDER WITH F. PULLEY AND COUNTERSHAFT, ON PEDESTAL WITH TRAY, WATER PAN, AND GUARDS



T.T.10 AND T.T.12 FLOOR GRINDERS WITH F. AND L. PULLEYS AND BELT SHIFTER, WITH TRAY, WATER PAN, AND STRIP STEEL GUARDS

The T.T. Grinders are of sound and rigid construction designed to meet the requirements of modern grinding practice.

Spindles are of increased diameter in the centre and, in addition to the ball bearings, run in sleeves giving them the steadiness of a plain bearing.

Ball Bearings are also fitted to the loose pulley and are all properly protected against grit.

Wheel Flanges are of adequate strength and proper size.

Steel exhaust hoods can, when required, be supplied for all T.T. Grinders.

Types T.T.6 and T.T.8 can be supplied as Bench or Floor machines with either F. and L. pulleys and belt shifter or F. pulley and countershaft.

The loose pulley on the T.T.6 has plain bearing but in the T.T.8 ball bearings are fitted.

Types T.T.10 and T.T.12 are furnished as Bench or Floor machines with either F. and L. ball-bearing pulleys or F. double cone pulley and countershaft.

Dimensions

Type		T.T.6	T.T.8	T.T.10	T.T.12
Takes Wheels	ins.	6×1	8×1	10×1½	12×2
Diameter of Wheel Flanges	"	3	4	5	6
Distance between Wheels	"	12	14½	19	21
Height to centre of spindle, bench	"	6	7	8½	9¾
" " " floor	"	42	42	42	42
Spindle, length	"	15	19½	25	28½
" diameter at ends	"	½	⅝ or ¾	¾	1
Pulleys, diameter and face	"	2×1⅝	2⅝×1⅝	3½×2¼	3½×2⅝
Approx. weight, bench	lbs.	42	80	135	175
" " floor	"	125	185	275	350
" " countershaft	"	28	28	60	120

T.T. Grinders are also made in larger sizes, particulars of which will be sent on request.

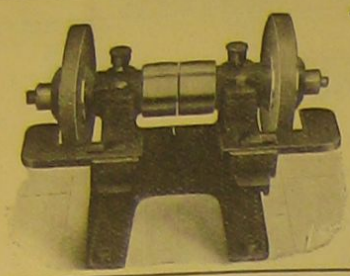
Modifications to suit customers' requirements can also be made.

Prices on application

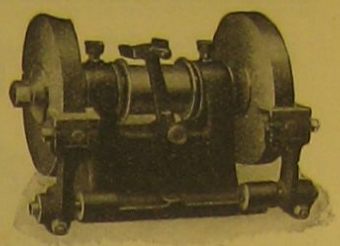
"Union" Bench Grinding Machines

(British Made)

Made in two styles with plain or ball bearings. The machines are of good quality and finish, and fitted with fast and loose pulleys.
No. 52 is a single wheel, plain bearing type machine.



No. 50
With Plain Bearings



No. 51
With Ball Bearings

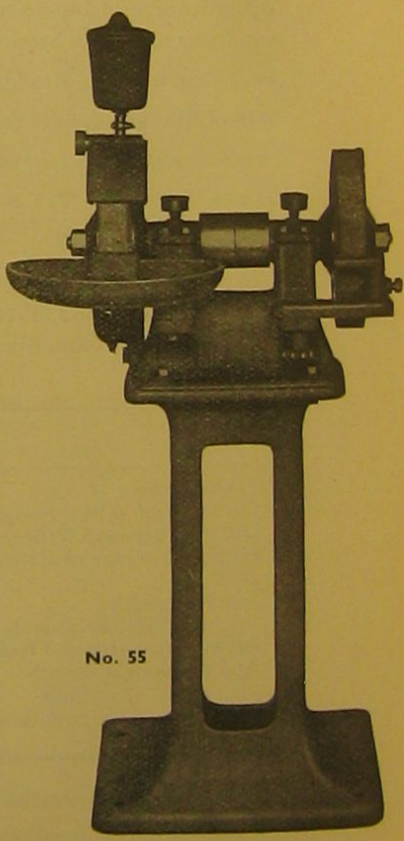
No.	50			51			52
Takes Grinding Wheels up to ins.	10×1×¾	12×1½×1	14×2×1¼	10×1×¾	12×1½×1	14×2×1¼	10×¾×¾
Height from Base to Centre ,,	8	9	9	8	8½	9	6
Length of Spindle Overall ,,	14½	22¼	26	16	20½	25½	12¼
Centre of Wheels ,,	10½	15¼	19	12	15	18½	—
Diameter of Spindle in Bearings ,,	⅞	1⅛	1⅜	⅞	1¼	1½	⅞
Size of Pulleys ,,	2¾×1¾	3¾×2¼	4¾×2⅞	3×1¾	3¾×2¼	4¾×2⅞	3¾×1⅝
Speed r.p.m.	2100	1700	1400	2100	1700	1400	2100
Weight of Complete Bench Machine lbs.	80	170	250	100	176	260	40
Weight of Complete Floor Machine ,,	196	340	470	216	346	480	—
Price (without Grinding Wheels)	£2 12 6	£4 10 0	£6 0 0	£5 0 0	£6 10 0	£8 0 0	£1 17 6
Extra if mounted on C.I. Stand	2 0 0	2 15 0	3 10 0	2 0 0	2 15 0	3 10 0	2 0 0
Extra for C.I. Guards	0 15 0	1 0 0	1 5 0	0 15 0	1 0 0	1 5 0	0 7 6
Extra for Cast-steel Guards	1 0 0	1 10 0	1 15 0	1 0 0	1 10 0	1 15 0	0 10 0

No. 51 M

"Union" Floor Grinding Machine, No. 51 M (British Made)

In these machines the motor is housed inside the column, and the spindle is direct driven by driving belt supplied as standard.
The high carbon steel spindle is mounted on two rows of self-aligning ball bearings, special precautions being taken for protection against dust. The pulley and wheel flanges are carefully machined and balanced. Steel wheel guards are fitted as standard equipment.
The pedestal is of close-grained cast iron and the motor seating and top are machined. The rear side of the pedestal is open for belt adjustments, etc.
The motor is of the protected type, flange mounting, and is clamped against a machined face and spigot. The motor pulley is machined and balanced. A suitable starter is supplied as standard, but push-button pattern is quoted as an extra. **Note**—Please give particulars of electrical supply when inquiring or ordering.

No.	51 M		
Size of Grinding Wheels ins.	10×1×¾	12×1½×1	14×2×1¼
Height Floor to Centre ,,	36	36	36
Length of Spindle Overall ,,	16	20½	25½
Centres of Wheels ,,	12	15	18½
Dia. of Spindle in Bearings ,,	⅞	1¼	1½
Size of Grinder Pulley ,,	2¾×2¼	3¾×2½	4¾×3¼
Size of Motor Pulley ,,	4⅛×2¼	4½×2½	4¾×3¼
Speed of Grinder Spindle, r.p.m.	2100	1700	1400
H.P. of Motor	1	2	3
Speed of Motor r.p.m.	1400	1400	1400
Approx. Net Weight lbs.	340	485	660
Price, as illustrated, with A.C. Motor 2 or 3 phase & 3 pole ironclad switch starter	£21 0 0	£28 0 0	£34 0 0
Extra for Single phase supply	2 10 0	3 0 0	3 10 0
,, ,, D.C. supply	2 10 0	3 10 0	7 0 0
,, ,, Push Button Starter	1 10 0	1 10 0	1 10 0



No. 55

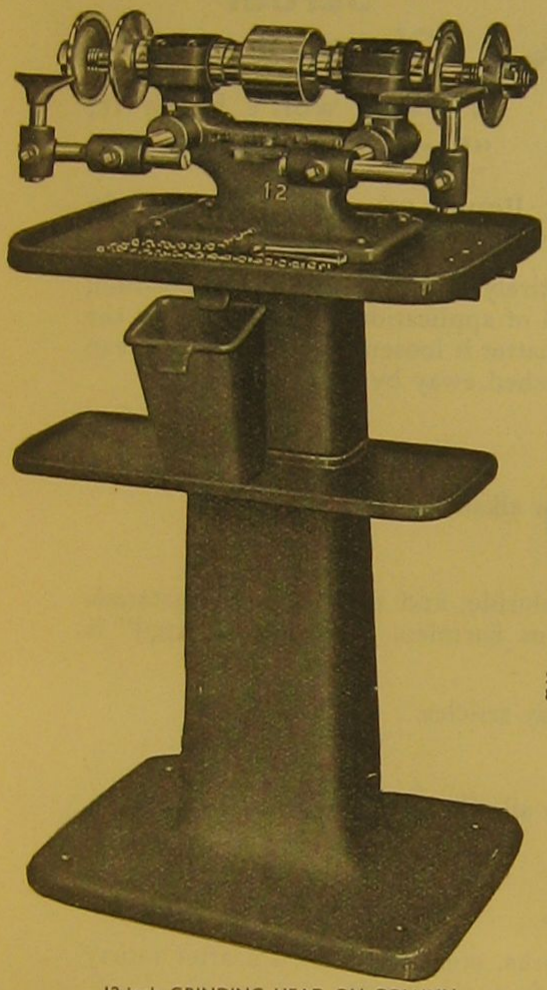
"Union" Combined Wet and Dry Grinding Machines, No. 55 (British Made)

For Engineering Shops, Motor Repair Depots, Etc.

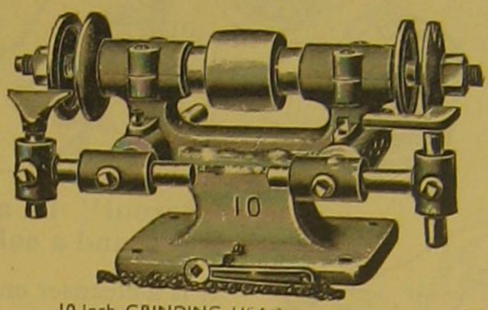
No.	55		
Takes Grinding Wheels up to ins.	10×1×¾	12×1½×1	14×2×1¼
Height of Centre ,,	8	9	9
Length of Spindle ,,	14½	22¼	26
Centres of Wheels ,,	10½	15¼	19
Diameter of Spindle in Bearings ,,	⅞	1⅛	1⅜
Size of Pulleys ,,	2¾×1¾	3¾×2¼	4¾×2⅞
Speed r.p.m.	2100	1700	1400
Net Weight lbs.	220	370	520

Prices quoted on request

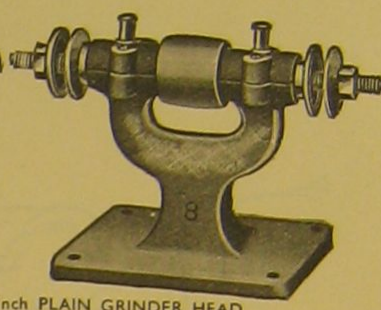
The B.I.F. (Pattern) Grinding Machines (British Made)



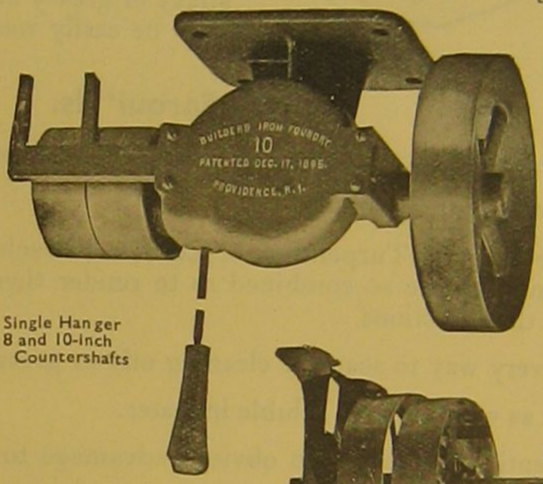
12-Inch GRINDING HEAD ON COLUMN



10-Inch GRINDING HEAD



8-inch PLAIN GRINDER HEAD
The 8-inch Head with Rests is similar to the 10-inch

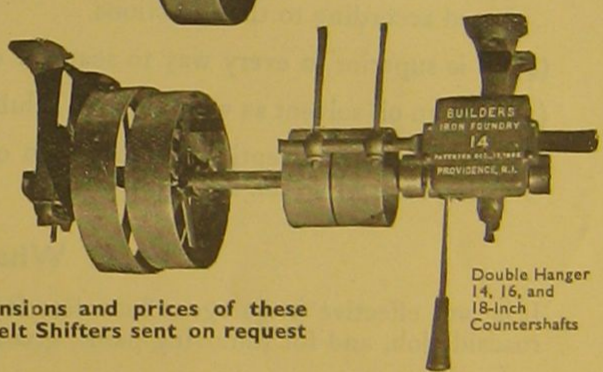


Single Hanger
8 and 10-inch
Countershafts

Patent Countershafts for B.I.F. (Pattern) Grinding Machines

Fitted with self-contained Belt Shifters

Made in U.S.A.)



Double Hanger
14, 16, and
18-Inch
Countershafts

Full details of dimensions and prices of these Countershafts and Belt Shifters sent on request

These Grinders are exceptionally heavy and rigid. The spindles are of best machinery steel, turned and ground to size.

The bearings are of unusually large size, placed as near the wheels as practicable, thus reducing the liability of vibration, and are dust proof. The four larger sizes of Grinders are provided with renewable interchangeable boxes as a means of compensation for wear.

The tight flanges are forced on to the spindle, and provided with grooves so arranged as to prevent the entrance of dust or dirt to the bearings from the outer ends of the boxes.

The loose flanges are provided with spherical bearings against the heavy case-hardened nuts. By this method the flanges can be screwed up without cramping the nut, as the flanges conform to any unevenness in the thickness of wheel.

The self-oiling arrangement ensures a plentiful supply of oil, and is of such construction that it is impossible for any grit to reach the bearings.

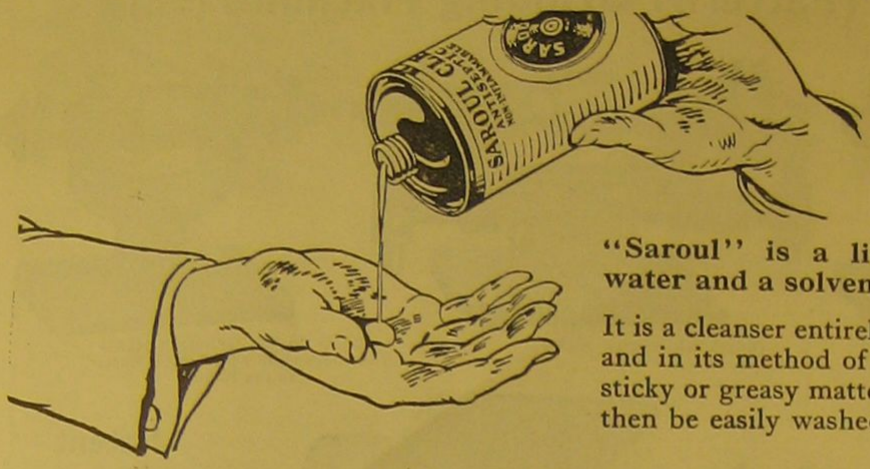
Reservoirs are provided underneath the spindles for holding oil, which is fed to the bearings by means of a "wiper," pressed up by a brass spring, and kept constantly in contact with the spindle. This method is used on all sizes excepting the 8-inch Machine.

The spindle pulleys are forced on the spindle.

The 14-inch Machine is provided with a two-step cone.

Size	Dimensions of Grinder Heads								Prices	Dimensions of Columns			Prices	
	Takes Emery Wheels			Pulley		Distance between Wheels	Height to Spindle	Weight	Head	Height	Weight	Style	Column	Countershaft
	Diam.	Face	Hole	Diam.	Face									
Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Lbs.		Ins.	Lbs.			
8 Plain	8	1	½	2	1¾	7	5¼	8		36¾	130	With Waterpot and Shelf		
8 with Rests	8	1	½	2	1¾	7	5¼	10		36¾	130			
10 ,,	10	1½	½	2¾	2¼	11	6⅜	25		34	145			
12 ,,	12	2	1	3½	2¾	15	7¾	65		31½	185			
14 ,,	14	2½	1¼	4½ & 5½	3¼	19	9	107		28½	262			
16 ,,	16	3	1½	5 ,, 6	3¾	23	10½	175		25¾	224	Without W. & S.		
18 ,,	18	3½	1¾	5¾ ,, 6¾	4¼	27	11⅝	290		23	300			

"SAROUL" CLEANSER



"Saroul" Cleanser (British Made)

If water won't harm it, "Saroul" will clean it.

"Saroul" is a liquid compound soluble in water and a solvent of oil.

It is a cleanser entirely new in principle, composition, and in its method of application. By penetrating the sticky or greasy matter it loosens the dirt, which can then be easily washed away by rinsing in water.

What "Saroul" is.

(1) It is chemically neutral, containing no free corrosive acids or alkalies.

(2) It contains no abrasives of any kind.

(3) It contains no free Paraffin, Turpentine, or Carbon Tetrachloride, and the cleansing materials of which it is composed are so combined as to render them harmless when the "Saroul" is used according to the directions.

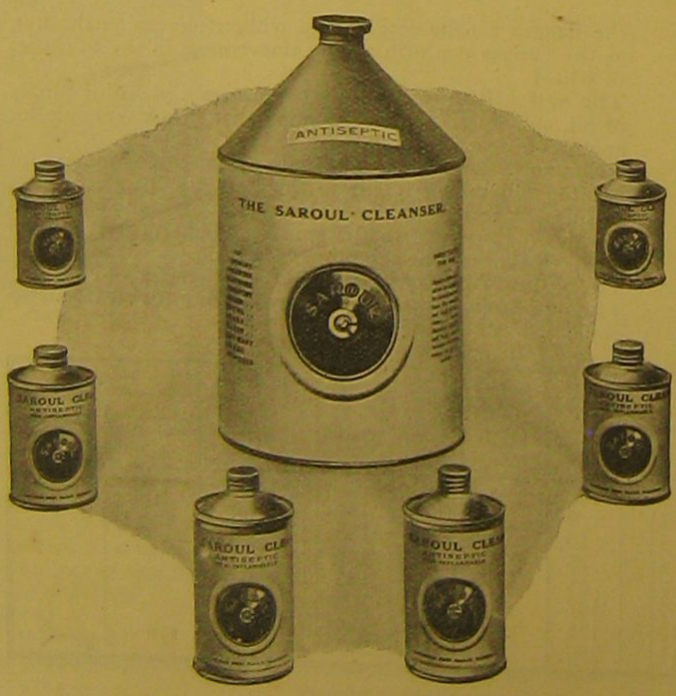
(4) It is superior in every way to soap for cleaning oily or greasy articles.

(5) It is an oil solvent as well as being soluble in water.

(6) Its powerful antiseptic qualities are an obvious advantage to all who are liable to get scratches, cuts, etc., while the hands are dirty.

What "Saroul" does.

It is very effective in garages, factories, foundries, printing works, etc.; for motorists after a dirty roadside job, and for removing paint, grease, new tar, and dirt from the hands.



In the home "Saroul" is very helpful in cleaning woodwork, paintwork, paint brushes, windows, leathers, sponges, baths, basins, sinks, linoleums, furniture, etc.

"Saroul" can be used diluted or undiluted according to directions.

It is important to wash out well with water in all cases after using "Saroul." Full directions for use sent on request.

"Saroul" Prices

	Containing: 2 ozs.	4 ozs.	8 ozs.
Sprinkler Top Tins	6d.,	9d.,	& 1/3 each
¼-Gallon Cans (contain 5 times amount in 1/3 size tin)			3/6 ,,
½-Gallon Cans			5/- ,,
1-Gallon Cans ...			8/3 ,,
2 or 3-Gallon Drums ...			8/3 per gall.
5 or 10-Gallon Drums ...			7/9 ,, ,,
Larger Drums or Barrels			7/6 ,, ,,

Section 6

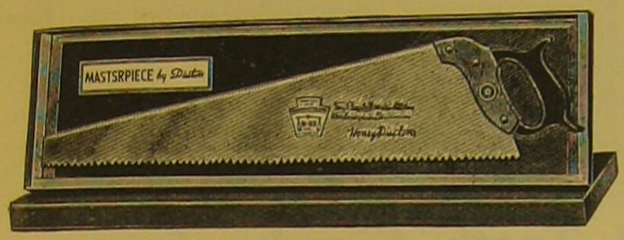
Tools for Woodworkers
also
Miscellaneous Tools, etc.

Saws, Planes, Braces
Saw Sets, Spokeshaves
Scrapers, Marking Gauges
Squares, Spirit Levels
Trowels, Mitre Boxes
Auger Bits, Chisels, Gouges
Tool Bags, Shave Hooks
Axes, Screw Drivers
Woodworkers' Vices and Cramps
Hammers, Bolt Clippers
Spanners, Socket, Pipe and Adjustable Wrenches
Box Spanners, Pliers, Nippers
Punches, Belt Fasteners
Rules and Measures
Cold Chisels, Shears
Nail Sets, Glass Cutters, Liquid Glues
Set, Cap and Sheet-metal Screws, Oil Cans
Soldering Irons, Blow Lamps Stoves, etc.

DISPLAY BOARDS and SELLING AIDS, also Handy REFERENCE TABLES and INFORMATION are shown at the end of this Catalogue

Disston Hand, Panel, and Rip Saws (Made in U.S.A.)

Warranted Cast Steel, Patent Ground and Tempered



"Masterpiece" No. D 95

A very high-class, superior stream-lined saw. The moulded handle is permanently coloured and will not chip or crack.

The fine quality blade cannot work loose in the handle, and is held by chromium plated brass screws and nuts.

Size, 24 ins. or 26 ins. long ... ... **25/- each**

D 115

Skew Back Saw of exceptionally high-grade finish, genuine rosewood handle, carved and polished, nickel-plated screws.

Size, 26 ins. ... ... **Price, 22/6 each**

D 17

Skew Back Saw, refined crucible steel blade, hardwood handle, full polished, brass screws. This saw is particularly adapted for general construction work of all kinds.

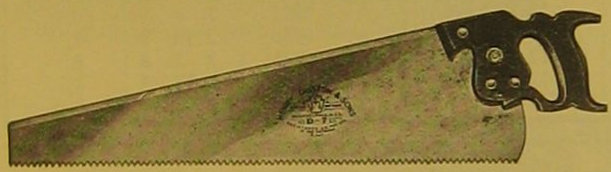
Size, 26 ins. ... **Price, 18/9 each**

D 8

Skew Back Saw, apple handle, full polished, brass screws.

The peculiar shape of butt makes it impossible for saw to work loose from the handle.

Size	18	20	22	24	26	28 ins.
Price	**11/-**	**12/-**	**12/6**	**13/6**	**14/-**	**16/6 each**



D 7

Warranted cast steel, beech handle, full polished, brass screws, grained blade and etched.

Size	20	22	24	26	28 ins.
Price	**10/6**	**10/6**	**12/3**	**12/3**	**14/3 each**

"Challenger" No. K 6, Skew Back Saws

Skew back, taper ground, extra high finish, teeth bevelled filed. Hardwood handle, mahogany colour, weatherproof finish.

Size	18	20	22	24	26	28 ins.
Price	**6/9**	**7/3**	**8/6**	**9/6**	**10/6**	**12/- each**

Disston "Keystone" No. 705, Skew Back Saws

Blade high polished, thin back. Beech handle, polished, with double spray carving. 20-inch has three brass screws, one being embossed. Other lengths have four brass screws, one being embossed.

Size	18	20	22	24	26	28 ins.
Price	**6/-**	**6/-**	**6/3**	**6/9**	**7/-**	**8/- each**

Disston "Jackson" Saws, No. 660

Warranted crucible steel blade, beech handle, polished.

Size	12	14	16	18	20	22	24	26	28 ins.
Price	**3/6**	**4/-**	**4/3**	**4/6**	**4/9**	**5/-**	**5/3**	**5/6**	**6/3 each**

Order all Hand Saws by the Number of POINTS to the inch.

ATTENTION is requested to the following when ordering saws:—Disston's Saws are marked by **points** to the inch, not by **teeth**; for example, a saw marked 5 (points) has four teeth to the inch.

We endeavour to keep in stock the following Points in the best quality saws:—

20-inch	Panel	9, 10, 11, and 12
22 „	„	8, 9, 10, 11, „ 12
24 „	„	8, 9, 10, 11, „ 12
26 „	Hand	5, 5½, 6, 7, 8, „ 9
28 „	Rip	3, 3½, 4, 4½, „ 5

SAWS AND MITRE BOXES

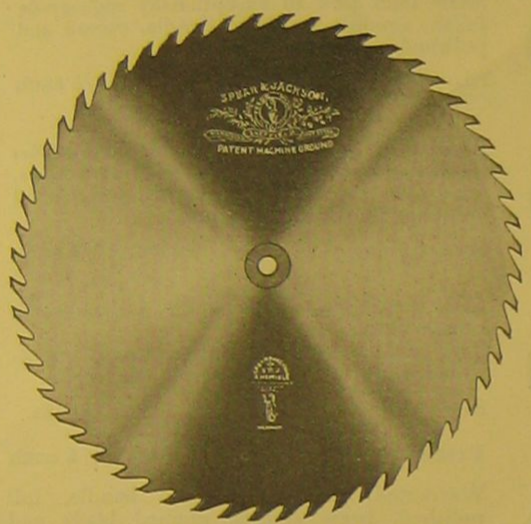
Disston "Imp" Saws, No. 600

Warranted cast steel, beech handle, varnished edge, three brass screws.

Sizes ...	14	16	18	20	22	24	26 ins.
Price ...	**2/9**	**2/9**	**3/-**	**3/-**	**3/-**	**3/3**	**3/6 each**

If ordered in sufficient quantities, No. 600 can be etched to suit customers' requirements.

"Mermaid" Brand Solid Tooth Circular Saws



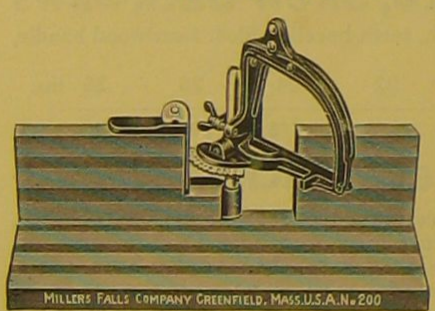
Larger and smaller diameter Solid Tooth Saws can be supplied.

These Saws are absolutely true round, set and sharpened, ready for use.

When ordering, following particulars should be given:— (1) Diameter; (2) Gauge at centre and gauge on tooth; (3) Size of centre hole, distance between pin holes, keyway, etc.; (4) Distance from tooth to tooth or number of teeth wanted; (5) Shape of tooth for rubbing or tracing.

Diameter ins.	Ordinary Thickness Stubs' W.G.	Standard Size of Hole ins.	R.p.m.	Price each	Extra for each Gauge stronger
12	17	$\frac{3}{4}$	3260	£0 13 0	1/3
14	17	$\frac{3}{4}$	2855	0 15 0	1/6
16	16	$\frac{3}{4}$	2450	0 18 0	1/9
18	15	1	2205	1 2 6	2/-
20	14	1	1960	1 7 0	2/6
22	14	1	1795	1 11 6	3/-
24	13	$1\frac{1}{4}$	1630	1 15 9	3/6
26	13	$1\frac{1}{4}$	1400	1 19 9	4/-
28	13	$1\frac{1}{4}$	1345	2 7 0	4/6
30	12	$1\frac{1}{4}$	1285	2 14 0	5/-
32	12	$1\frac{1}{2}$	1225	3 2 6	6/-
34	12	$1\frac{1}{2}$	1150	3 13 9	7/-
36	11	$1\frac{1}{2}$	1080	4 5 3	8/6

Millers Falls Mitre Box, No. 200 (Made in U.S.A.)



The frame of this box is made of laminated wood dowelled for strength. The saw guide is designed so that either a back or panel saw may be used.

The saw guide is mounted on a steel post and can be adjusted freely for various angles and heights. It is provided with three screws for adjustment to the thickness of the saw blade used.

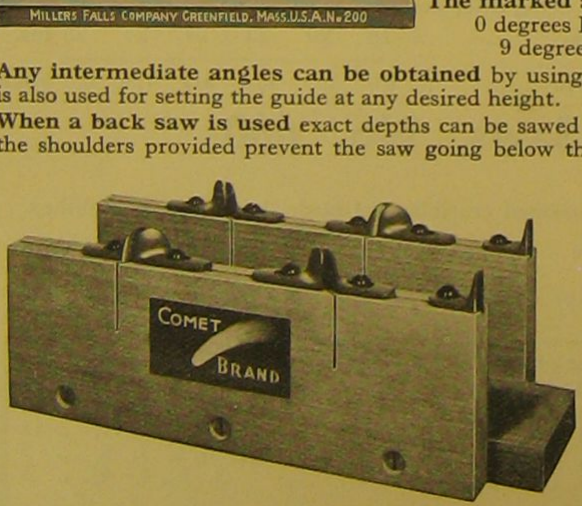
A steel index plate, indexed and clearly marked for the six commonly used angles 0, 9, 22½, 30, 36, and 45 degrees, right or left, is fixed to the saw guide. To set the guide at any one of these angles the steel slide key in the frame of the box is lifted and the guide swung until the proper notch in the index plate is opposite the key. The key is then pushed down until it seats firmly in the notch.

The marked angles are used for the following cuts:—

0 degrees Right Angles. 22½ degrees Octagonal. 36 degrees Pentagonal.
9 degrees Sill Pitch. 30 degrees Hexagonal. 45 degrees Mitre.

Any intermediate angles can be obtained by using the thumb screw at the back of the saw guide. This thumb screw is also used for setting the guide at any desired height.

When a back saw is used exact depths can be sawed by raising the saw guide on its post to the proper height so that the shoulders provided prevent the saw going below the desired point. **Price ... ... 14/6 each**



COMET
Adjustable Mitre Box
Nos. 566 and 568 (British Made)

Made of well-seasoned beechwood.

No. 566, Capacity up to 3 ins. wide **4/- each**
No. 568, „ „ „ 4 „ „ **4/3 each**

Spear & Jackson Hand Saws (British Made)

"Spearior" Vanadium Saws

No. 171 Skew Back

These are super-quality saws, made from a special alloy of vanadium steel of great toughness. They will work longer without sharpening than other saws, and are not likely to buckle in use. Mirror polish finish with carved hardwood handles, polished, and raised nickel-plated screws.

Size ...	20	22	24	26	ins.
Price	192/–	204/–	216/–	222/–	per doz.

"Spearior" No. 88 Skew Back

No. 82 Straight Back

No. 88. Silver steel, warranted London spring. Mirror polish. Selected English beech handle, polished all over. Raised nickel-plated screws.
No. 82 is similar but of special alloy cast steel.

Size	...	20	22	24	26	28	ins.
No. 88	...	141/–	150/–	165/–	165/–	195/–	per doz.
No. 82	...	126/–	126/–	141/–	141/–	168/–	,,

"Leapfrog" No. 25 Skew Back No. 24 Straight Back

Warranted best cast steel, extra spring temper, highly polished. Selected English beech handle, polished all over. Raised nickel-plated screws.

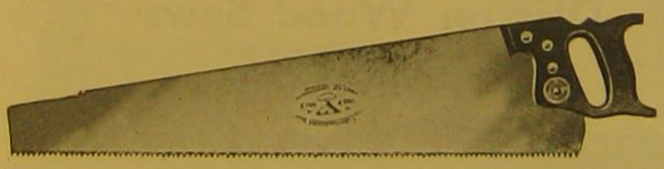
Size	...	...	20	22	24	26	ins.
No. 25	...	...	114/–	120/–	126/–	132/–	per doz.
No. 24	...	...	108/–	114/–	120/–	126/–	,,

"Sovereign" No. 179 Skew Back

"Lloyd Davies" No. 62 Straight Back

Warranted cast steel, special polish English beech handles, carved and polished all over. Four improved raised brass screws.

Size ...	20	22	24	26	28	ins.
No. 179	72/–	78/9	85/–	88/3	100/9	per doz.
No. 62	66/–	72/6	78/9	81/9	94/6	,,



"Aetna" No. 60 Skew Back

"Aetna" No. 66 Straight Back

Reliable Saws for household or amateurs' use. Cast steel, with polished English beech handles. Brass Screws.

Size	12	14	16	18	20	22	24	26	ins.
No. 60	—	—	—	—	47/3	50/6	56/9	60/–	per doz.
No. 66	31/6	34/6	37/6	41/–	44/3	47/3	50/3	53/9	,,

"Cockerill" No. 99 Skew Back

A low-priced reliable Saw. Black handle. Brass Screws.

Size ...	20	22	24	26	ins.
No. 99 ...	34/9	38/–	41/–	44/3	per doz.

"Amateur" No. E 180

Made in one size only. Skew back, 22 inches, 8 points per inch.

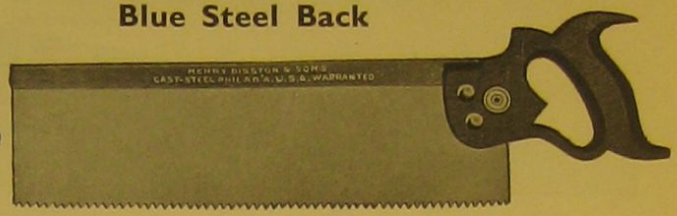
Price ... ... 38/– per doz.

BACK SAWS, NESTS, ETC.

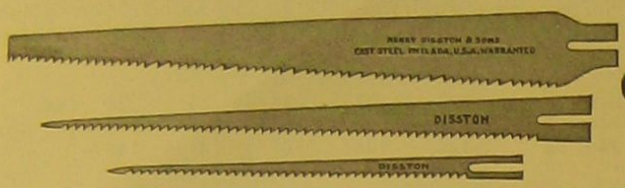
Disston Saws (Made in U.S.A.)

Brass Back

Blue Steel Back

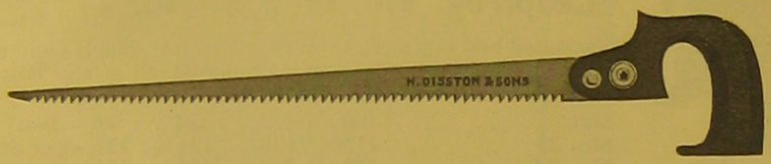


Sizes ... ... ins.	8	10	12	14	16
No. 0.—"Davis" Saw ... ... each	—	4/-	4/6	5/3	—
,, 4.—Disston Blue Steel Back ... ... ,,	9/6	9/6	10/3	10/9	12/3
,, 5.— ,, Brass Back ... ... ,,	10/3	10/3	11/6	12/6	13/6



Nest of Saws, No. 3

	Price each
Complete	... 8/–
Pruning Blades, 16 ins. long	... 3/3
Compass Blades, 14 ins. long	... 2/0
Keyhole Blades, 10 ins. ...	... 1/6
Handles and Screws ...	... 1/6



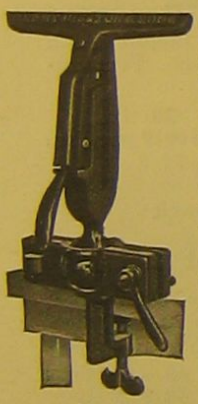
Compass Saw, No. 2

Cast Steel, Apple Handle

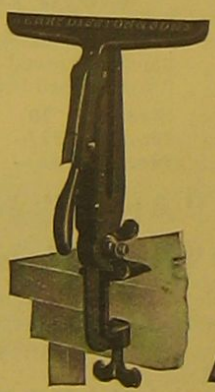
Sizes	12	14 ins.
Prices	3/6	3/6 each

Disston Saw Filers' Vice

(Made in U.S.A.)



No. 1

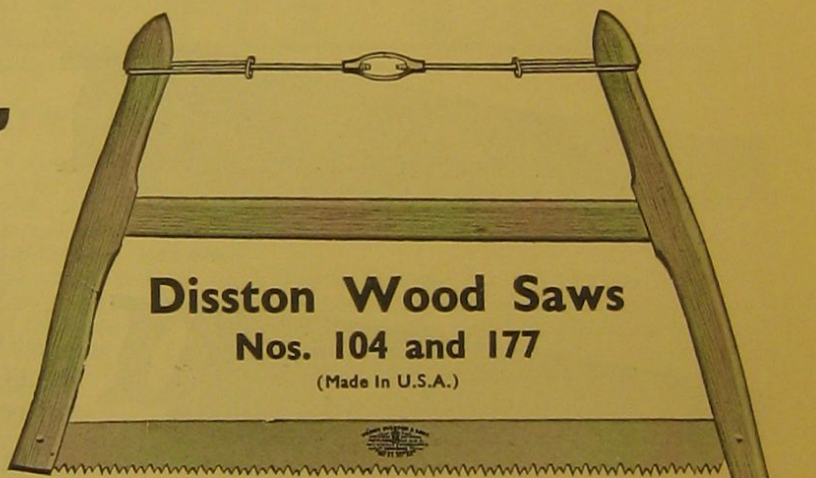


No. 2

These Vices are of cast iron, nicely japanned and are **made in two styles**—one with a ball and socket joint, which permits swivelling in any direction; the other with a plain joint, which only allows of work being done parallel with the bench.

No. 1. Ball and Socket, **19/3 each**

No. 2. Plain Hinge. **13/3 each**



Disston Wood Saws

Nos. 104 and 177

(Made in U.S.A.)

No. 104—Frame No. 100, 30 ins. Complete with Clipper loop rod and No. 4 Jackson Blade. Plain.
Price, 4/3 each. Extra Blades, No. 4, 16/9 per doz.

No. 177—Frame No. 100, 30 ins. Complete with Clipper loop rod and No. 77 Blade. Plain.
Price, 5/9 each. Extra Blades, No. 77, £1 16 6 per doz.

Disston Saw Handles

(Made in U.S.A.)

Sizes	18 & 20	22 & 24	26	ins.
Hand, No. D 8, Apple ...	44/–	45/6	50/6	per doz.
Hand, No. D 7, Beech ...	35/–	35/6	36/–	per doz.

Sizes ...	8, 10, 12,	14, 16	ins.
Back Saws, No. 4	2/6	2/9	each

No. 1

No. 4

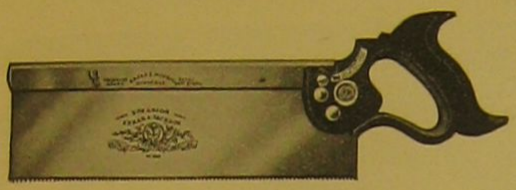
Disston Saw Screws

(Made in U.S.A.)

These Screws are made of wrought brass.

No. 1. Centennial		15/6	per gross
,, 2. ,, ...		16/9	,,
,, 3. ,,	Small Eagle	31/9	,,
,, 4. ,,	Large ,,	35/3	,,

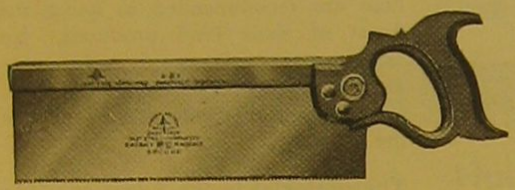
Spear & Jackson Back or Tenon Saws (British Made)



"Spearior," No. 260. Bright Steel Back
No. 266. Brass Back

These extra quality Saws are of cast steel, London spring. Best English beech handles, polished all over. The extra screw through the back prevents the back becoming loose and buckling the blade. Raised nickel-plated screws. Special finish.

Size	10	12	14	ins.
No. 260	144/9	155/6	166/–	per doz.
No. 266	174/-	199/6	224/6	,, ,,

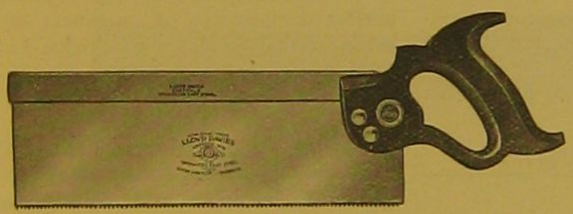


" Leapfrog," No. 46. Bright Steel Back
No. 52. Brass Back

This Saw corresponds in quality with the No. 24 Hand Saw, and is an "all-round" carpenters' tool. Warranted cast steel with polished English beech handle. Improved raised nickel-plated screws.

Size	8 and 10	12	14	16	ins.
No. 46	115/6	123/–	133/6	149/–	per doz.
No. 52	126/–	141/9	157/6	—	,,

For fine cabinet work No. 46a Steel Back and No. 52a Brass Back Saws, 8 ins., 26g, 20 points per inch, can be supplied.



"Lloyd Davies," No. 47. Bright Steel Back
No. 53. Brass Back

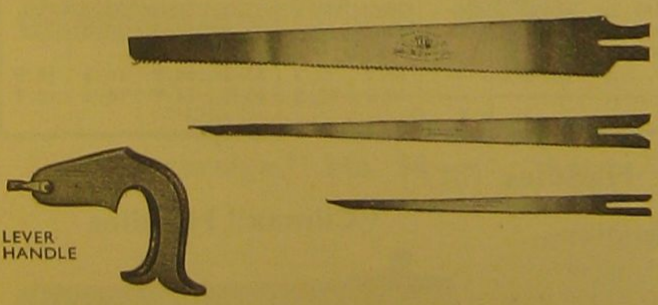
A medium quality Saw for schools and amateurs. Warranted cast steel, with English beech handle polished on edges. Fitted with improved raised brass screws.

Size	8	10	12	14	16	ins.
No. 47	75/9	75/9	85/–	97/6	110/3	per doz.
No. 53	94/6	94/6	104/–	113/3	—	,,

"Aetna," No. 55. Bright Steel Back
"Goblin," No. 199. Bright Steel Back

Good cheap Saws for household use and general purposes. English beech handles. Raised iron screws. No. 55 has brass screws.

Size	8	10	12	14	16	ins.
No. 55	47/3	47/3	53/6	63/–	72/6	per doz.
No. 199	35/–	35/–	38/–	41/–	—	,,



Nests of Saws

With interchangeable blades and screw pattern handle of English beech. Nickel-plated screws. Supplied with three blades (one each pruning, compass, and keyhole).

No. 269.	"Mermaid," best quality, with Screw Handle ...	63/–	per doz. sets
No. 288.	"John Cockerill," with Screw Handle	34/6	,, ,,
No. 287.	"John Cockerill," with lever Handle	34/6	,, ,,
No. 298.	"Goblin," cheap quality, with Screw Handle ...	22/–	,, ,,

Extra Blades (Mermaid Brand)

Pruning, No. 273, 18 ins., 23/9 doz. Compass, No. 274, 14 in., 12/9 doz. Keyhole, No. 275, 10 ins., 9/6 doz.
Best quality, Lever Pattern Handles, No. 271, 17/6 doz. Cheap quality, No. 325, 9/6 doz.
Best quality, Screw Pattern Handles, No. 278, 17/6 doz. Cheap quality, No. 324, 9/6 doz.

Disston Cross-Cut Saws (Made in U.S.A.)

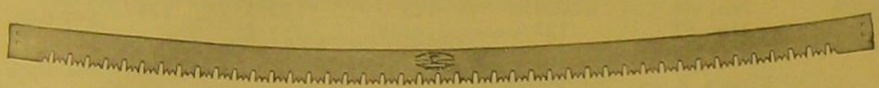
Set and Sharpened.

K. 964 "PLAIN." ONE-MAN SAW. WITH SUPPLEMENTARY HANDLE

"GREAT AMERICAN" ONE-MAN SAW, No. 524, WITH SUPPLEMENTARY HANDLE

"GREAT AMERICAN," No. 124. "CLIMAX" HANDLES EXTRA

"LANCE" PERFORATED, No. 114. "CLIMAX" HANDLES EXTRA



"TRIUMPH GREAT AMERICAN," No. 224, NARROW CROSS-CUT SAW. "CLIMAX" HANDLES EXTRA

"CHAMPION" K520. WIDE TWO-MAN SAW. "CLIMAX" HANDLES EXTRA

"PLAIN" K620. WIDE TWO-MAN SAW. "CLIMAX" HANDLES EXTRA

The Disston Cross-Cut Saws shown here are recommended as being the finest of their kind produced. No expense or care is spared in their production. They run easier, cut faster, and last longer than other brands on the market.

The material is the finest crucible steel made by a special process in the Disston Works, each ingot being carefully tested.

Tempering and hardening processes are such that the degree giving perfect combination of toughness and hardness that produces the "edge and set-holding qualities" is always maintained.

Grinding. The Disston Cross-Cut Saws are taper ground, and great care is taken in keeping a uniform thickness on the cutting edges.

In the blocking, polishing, stiffening, and final processes of manufacture the same high-grade workmanship is exercised.

Sizes ... ... feet	3	3½	4	4½	5	5½	6	7
Prices, "Plain" One-Man Saw, No. K964, with Handle each	6/9	7/9	9/-	9/6	—	—	—	—
,, "Great American" One-Man Saw, No. 524, with Handle ... ... ,,	16/-	18/9	21/9	23/6	26/9	—	—	—
,, "Great American," No. 124, without Handle ,,	—	—	20/9	23/-	25/9	28/6	30/9	36/-
,, "Lance" Perforated, No. 114, without Handle ,,	—	—	22/-	25/-	27/6	30/-	32/6	—
,, "Triumph Great American," No. 224, Narrow ,,	—	—	11/6	12/9	14/9	16/6	17/9	—
,, "Champion" Two-Man Saw, No. K520, without Handle ... ... ,,	—	—	10/9	12/3	13/3	14/9	16/3	18/9
,, "Plain" Two-Man Saw, No. K620 ... ... ,,	—	—	10/9	12/3	13/3	14/9	16/3	18/9

Disston Saw Handles (Made in U.S.A.)

Supplementary Handles

No. 118

For One-Man Saw

Price ... 14/9 per dozen

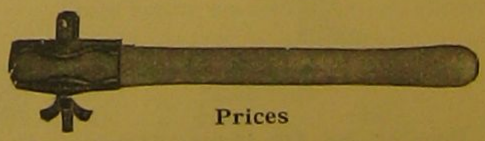
Main Handles

For One-Man Saws

No. 218, for Saws, 3½ ft. and larger.
,, 218A, for Saws up to 3 ft. long.

Price ... 23/– per doz.

"Climax" Handles



Prices

No. 102½, for Narrow Cross-Cut Saws, 200/– per 100 pairs.
No. 103, ,, Regular ,, ,, 200/– ,, ,, ,,

CROSS-CUT AND FARMERS' SAWS

Spear and Jackson Two-Man Cross-Cut Saws (British Made)

"Mermaid," No. G 482. Peg Tooth "Aetna," No. G 13. Peg Tooth

No. G 13

No. G 482. Ground two gauges thin to back. Set and sharpened and fitted one fast and one loose tang.

No. G 13. Warranted cast steel, set and sharpened, parallel ground, fitted with two fast tangs.

"Mermaid," No. G 522. Gt. American Tooth "Aetna," No. G 15. Gt. American Tooth

No. G 522

No. G 522 is ground two gauges thin to back. Set and sharpened and fitted one fast and one loose tang.

No. G 15. Cast steel, set and sharpened, parallel ground, and fitted two fast tangs.

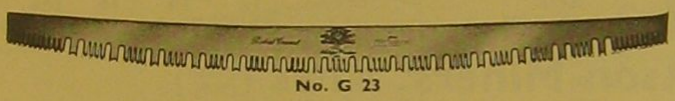
Parallel Scotch Pattern

"Aetna," No. G 292

Peg Tooth. Ground two gauges thin to back. Fitted two fast tangs.

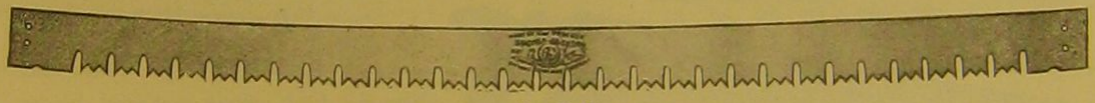
Hollow Back Pattern

"Mermaid," No. G 23. Lance Tooth No. G 25. Gt. American Tooth



No. G 23

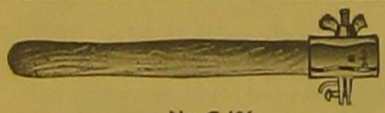
Special alloy steel, machine ground two gauges thin to back. Special finish. Set and sharpened. Without tangs.



No. G 25

Sizes and Prices

Length ... ... ft.	3	3½	4	4½	5	5½	6	6½	7
No. G 482. Peg Tooth ... ... each	12/-	13/-	14/-	16/-	19/3	20/3	23/3	25/6	27/9
,, G 13. Peg Tooth ... ... ,,	6/6	7/6	8/6	9/6	10/6	11/9	13/6	—	—
,, G 522. Gt. American Tooth ... ... ,,	12/6	13/9	14/9	17/-	20/6	21/6	25/-	27/3	29/9
,, G 15. American Tooth ... ... ,,	8/3	9/9	10/6	11/9	13/-	14/3	15/9	—	—
,, G 292. V Tooth ... ... ,,	6/-	7/3	8/-	9/3	10/3	11/6	13/3	—	—
,, G 23. Lance Tooth ... ... ,,	—	9/6	10/9	12/-	13/6	14/9	16/3	—	—
,, G 25. Gt. American Tooth ... ... ,,	—	9/6	10/9	12/-	13/6	14/9	16/3	—	—



No. G 106

No. G 99

No. G 107

No. G 100

Handles and Tangs for Cross-Cut Saws

No. G 99. Loose Tangs ... ... 2/3 pair
No. G 100. Fast Tangs ... ... 1/6 ,,

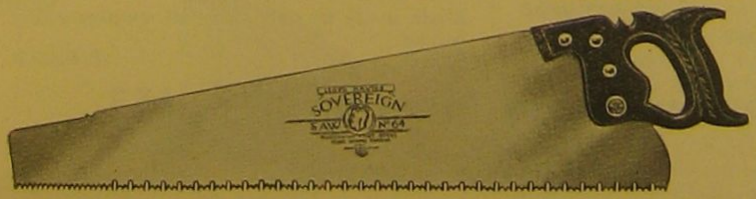
Handles

No. G 106. Climax pattern, reversible, 13½ ins. long × 1⅜ ins. at strongest point ... ... 2/3 pair
No. G 107. Plain ash handles for fast or loose tangs, 13 ins. long ... ... 1/- ,,

Spear and Jackson Farmers' Saws (British Made)

"Sovereign," No. 64 "Aetna," No. 186 "Goblin," No. 69

American Tooth



Cast steel with English beech handles, carved, polished all over. No. 69 has black handle. Brass screws.

Note the special fine teeth for easy starting in green or wet wood.

Size	24	26 ins.
No. 64	85/–	88/3 per doz.
No. 186	56/9	59/9 ,,
No. 69	47/3	50/6 ,,

PRUNING, MINERS' AND CROSS-CUT SAWS

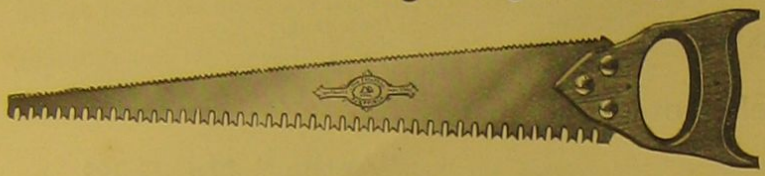
Spear & Jackson Pruning Saws (British Made)

"Mermaid," No. 27
"John Cockerill," No. 44

English black beech handles. Brass Screws.

Size	14	16	18	20 ins.
No. 27	43/3	45/–	46/6	48/– per doz.
No. 44	28/6	29/3	30/–	30/9 ,,

Lightning Pruning Saws

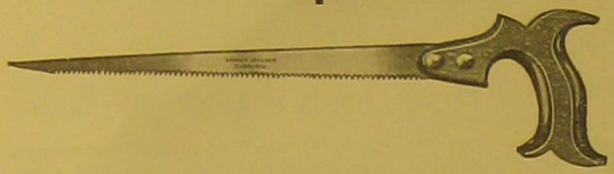


"Mermaid," No. 73
"John Cockerill," No. 13

Double Edge. English beech handle, black. Nickel-plated screws.

Size	14	16	18	20 ins.
No. 73	53/9	56/9	60/–	63/– per doz.
No. 13	38/–	41/–	44/3	47/3 ,,

Spear & Jackson Compass Saw (British Made)

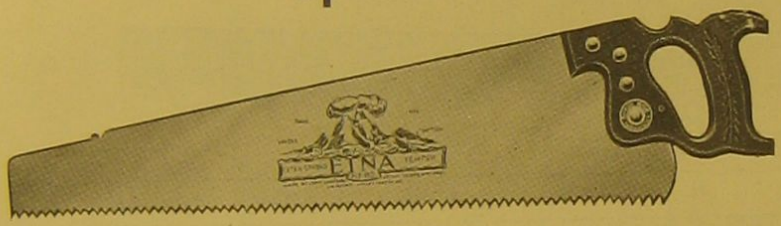


"John Cockerill," No. 29

English beech black handle, polished on edges, brass screws.

Size	12	14	16 ins.
No. 29	22/3	23/9	25/3 per doz.

Spear & Jackson Miners' Saws (British Made)

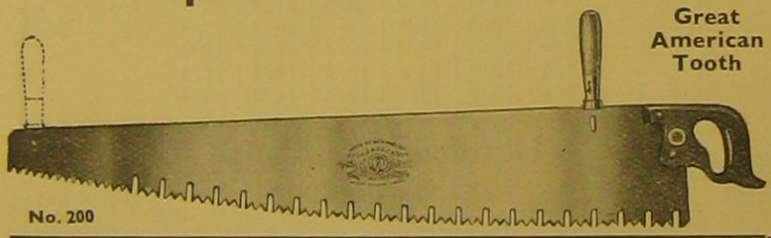


"Aetna," No. 92
"Cockerill," No. 68

Straight back, stout cast-steel blades, beech handles, polished on edges. Brass Screws.

Size	24	26 ins.
No. 92	50/6	53/6 per doz.
No. 68	41/–	44/3 ,,

Spear & Jackson One-Man Cross-Cut Saws (British Made)

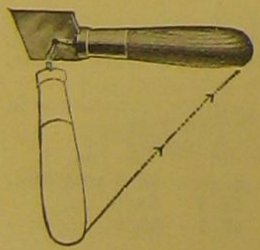


Great American Tooth

No. 200

Size	2½	3	3½	4	4½	5 feet
No. 200	9/6	10/6	11/6	12/9	14/3	15/9 each
No. 202	8/6	9/3	10/-	11/6	13/-	14/6 ,,

No. 205



"Mermaid," No. 200

English beech handle, black, and with improved raised brass screws. Supplementary handle.

"John Cockerill," No. 202

English beech handle, black, with improved brass raised screws and supplementary handle.

No. 1202

Cheaper quality one-man cross-cut saw, with supplementary handle, light handle, black edges, brass rivets.

Size	2	2½	3	3½ ft.
Price	6/9	7/6	8/–	8/9 each

Peg Tooth

"John Cockerill," No. 205

Made in 2½ ft. only, without supplementary handle.

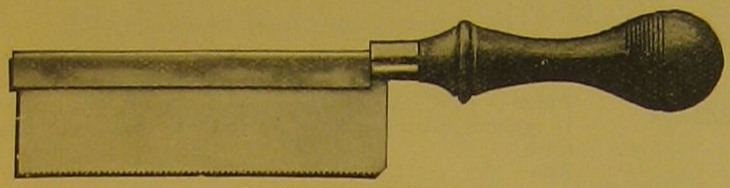
Price ... ... **7/6 each**

Supplementary Handles, No. 153

These are easily attached to the saw blade, the tang being inserted sideways and the handle then pushed up to the vertical position and screwed tight.

Price ... ... **12/– per doz.**

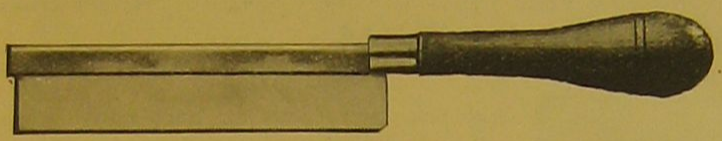
SAWS, SAW CASES, &c.



GENTS' BRASS BACK SAW

COMET
Gents' Brass Back Saws No. 61

Size ...	4	5	6	7	8	9	ins.
Price	13/–	14/–	15/–	16/6	18/–	21/–	per doz.



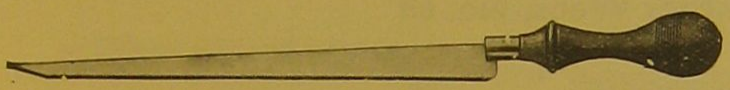
JEWELLERS' SAW

COMET
Jewellers' Brass Back Saws No. 62

Size	4	5	6	ins.
Prices	10/–	11/–	12/–	per doz.

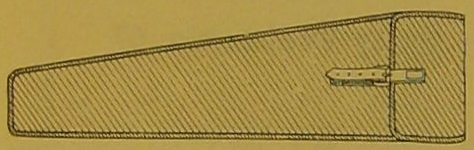
COMET Special Patternmakers' Saw, No. 53

This Saw has been specially made for Patternmakers' work, and will be found to give extraordinary facilities for making a clean cut round curves.
The handle is of the improved pattern, by which it is impossible for the blade to come out or work loose.



Blades 10 inches long, 16 teeth per inch.

Price ... ... 12/– per doz.

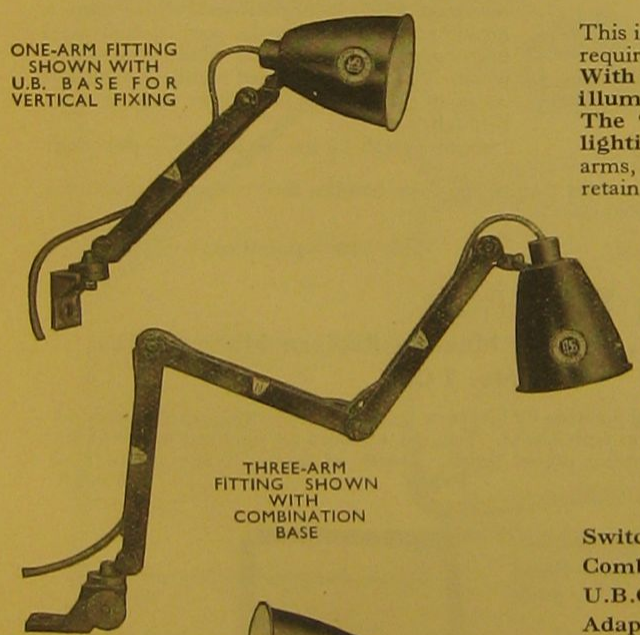


COMET Canvas Cases for Saws (British Made)

These cases will take any make of saw. They are made of waterproof canvas fitted with an extra strong leather strap.

Hand Saw Cases.							Tenon Saw Cases.		
Size, ins.	18	20	22	24	26	28	Size ins.	12	14
Price, each	2/3	2/5	2/7	2/9	2/11	3/1	Price, each	1/11	2/1

"D.L.S." Adjustable Electric Light Fittings (British Made)



ONE-ARM FITTING SHOWN WITH U.B. BASE FOR VERTICAL FIXING

THREE-ARM FITTING SHOWN WITH COMBINATION BASE

TWO-ARM FITTING CLOSED SHOWING COMPACT FORM WHEN NOT IN USE

This is a fitting for Machine and Bench Lighting and for use in all places requiring a concentrated light without glare.
With these fittings every part of the work in the machine can be illuminated whenever required by the operator.
The "D.L.S." construction gives universal movement at the lighting point and the base bracket, which, together with the jointed arms, afford perfect freedom of movement over a wide range and yet retain the required "set position."
The arms, which are a particular feature, are of pressed steel, each in one piece, ensuring strength and rigidity. Can be **clamped in any position.**

Prices

One-Arm Fitting (Range 18 ins.)	...	...	16/– each
Two ,, ,, (,, 27 ,,)	...	...	18/6 ,,
Three ,, ,, (,, 36 ,,)	...	...	21/– ,,

Fitted complete with Special "D.L.S." Reflector and Home Office Type Lamp Holder, to take Standard Lamp, and fitted with either "B.B." type Base for horizontal surfaces or "U.B." type for upright surfaces.

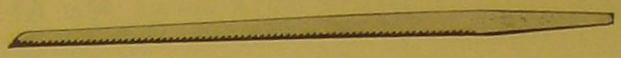
Extras

Switch Lamp Holder	2/6
Combination Base	1/–
U.B.C. Wall Bracket, screwed for conduit	1/6
Adapters for Lamp Sockets, 1/–	Cable, per foot, 5d.
Wiring One-Arm Fitting, with 3 ft. Twin Flexible Cab Tyre Sheathed Cable	2/–
Wiring Two-Arm Fitting with 4 ft. Twin Flexible Cab Tyre Sheathed Cable	2/6
Wiring Three-Arm Fitting with 5 ft. Twin Flexible Cab Tyre Sheathed Cable	3/–

Standard Finishes:—Shade, vitreous enamelled: Arms, enamelled or copper oxidised: Base, enamelled: Lamp Holder, H.O. autogrip.

SAW BLADES, PAD HANDLES, COPING SAWS

COMET Keyhole or Pad Saw Blades, No. 54



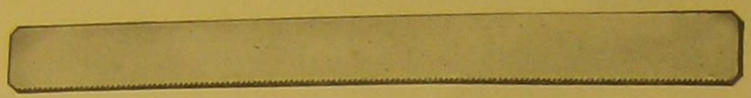
Bright or Straw Finish

Best Quality ...	10	11	12	ins.
Price	**30/–**	**32/–**	**34/–**	**per gross**

If ground specially thin from teeth to back, with fine teeth:—

Size	10	11	12	ins.
Price	**40/–**	**42/–**	**44/–**	**per gross**

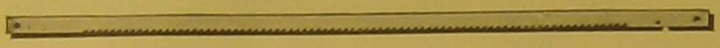
COMET Butcher Saw Blades, No. 64



With one or two holes in. Supplied with one hole only unless otherwise specified.

Size	12	14	16	18	20	22	24	ins.
Price, $\frac{3}{4}$ inch wide	**5/3**	**5/9**	**6/9**	**7/2**	**7/11**	**9/–**	**9/9**	**per doz.**
,, $1\frac{1}{4}$ or $1\frac{1}{2}$ inches wide	**9/–**	**9/9**	**10/6**	**11/9**	**12/5**	**13/2**	**14/8**	**,,**

COMET Barnes Webs, No. 68



$\frac{1}{8}$, $\frac{3}{16}$, and $\frac{1}{4}$ inch wide, 7 inches long **2/3 per doz.**
,, ,, with Pins ... **2/8** ,,

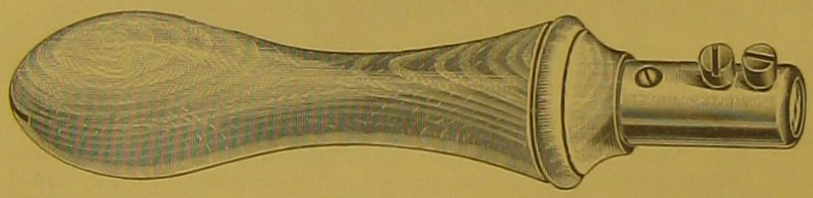
COMET Bow Saw, Turning, Fret, Jigger, or Betty Webs, No. 67

Set and Sharpened.

Size	6	7	8	9	10	12	14	16	18	20	22	24	26	28	30	ins.
Price	**24/9**	**26/9**	**28/3**	**33/9**	**37/3**	**40/6**	**47/9**	**54/9**	**65/3**	**75/9**	**81/–**	**86/9**	**98/9**	**105/9**	**113/–**	**per gross**

Extra if fitted with pins up to 12 inches, **4/6**, over 12 inches, **6/5** per gross.

COMET Beech Pad Saw Handles (British Made)



These well-shaped handles are made from seasoned English beechwood, fitted with a heavy spun brass ferrule, and slotted steel barrel for holding the saw blade securely in place. The highly polished handle is arranged so as to permit the saw blade passing right through.
Length overall $7\frac{1}{2}$ ins. **Price, 19/– per doz.**

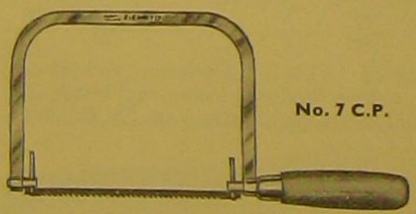
Slightly lighter in weight than the pad saw handles shown above and without the slotted steel barrel.

Price ... ... 12/– per doz.

"Eclipse" Coping Saws (British Made)

For Joiners, Cabinet Makers, Pattern Makers, etc.

No. 7 C.P.

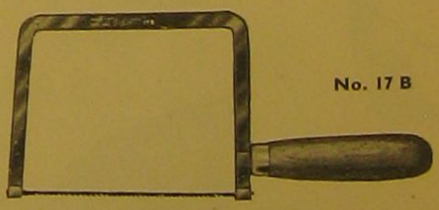


No. 7 C.P.

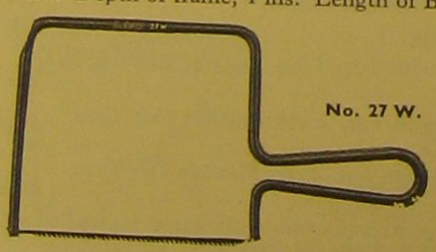
Blade swivelled to any position by levers or tension pieces which revolve without play in sockets integral with frame. Tension adjusted by steel nut in the hardwood handle. Chromium plated finish. Depth of frame, 5 ins.: Length of blade, $6\frac{1}{2}$ ins. **Price ... ... 2/6 each**

No. 17B

Blade can be fitted in four directions. Comfortable hardwood handle. Blued finish. Depth of frame, 4 ins. Length of Blade, 6 ins. **Price ... 1/– each**



No. 17 B

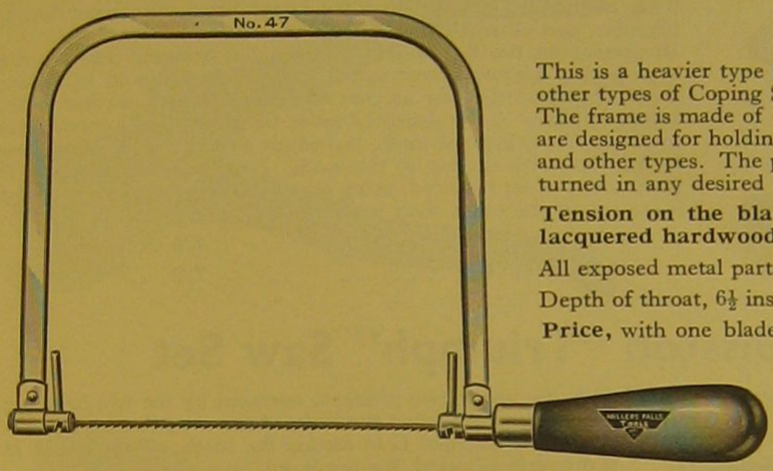


No. 27 W.

No. 27W

This frame and handle is formed from one piece of high-grade steel and has blued finish. The Blade can be fitted in four directions. Depths of frame, $4\frac{1}{2}$ ins. Length of Blade, 6 ins. **Price ... ... 6d. each**

Millers Falls-Goodell Pratt Coping Saw Frames (Made In U.S.A.)



No. 47

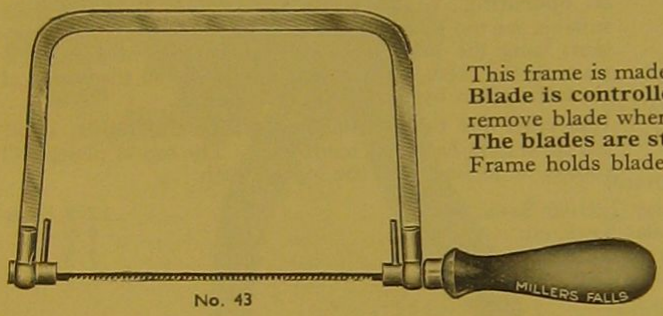
This is a heavier type frame with a greater depth of throat than in the other types of Coping Saws.
The frame is made of $\frac{3}{16}$ in. × $\frac{3}{8}$ in. round edge spring steel. The studs are designed for holding 6 or $6\frac{1}{2}$ inch coping saw blades of the loop, pin, and other types. The pins set firmly in the studs permit the blade to be turned in any desired direction.

Tension on the blade is controlled by turning the mahogany lacquered hardwood handle.

All exposed metal parts heavily nickel-plated and buffed.

Depth of throat, $6\frac{1}{2}$ ins.

Price, with one blade ... ... **4/2 each**

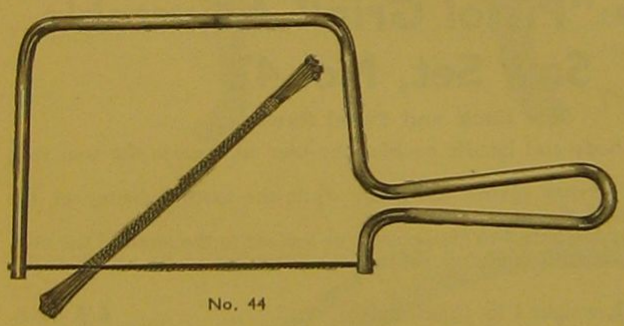


No. 43

No. 43

This frame is made from stiff flat spring steel.
Blade is controlled by pins in studs at either end, making it unnecessary to remove blade when it is desired to change direction of cut.
The blades are strained by turning handle and can be locked at any angle.
Frame holds blades $6\frac{1}{2} \times \frac{3}{32}$ ins.| Depth of frame, $4\frac{3}{4}$ ins. Weight, 6 ozs.

Price, with one blade, $6\frac{1}{2} \times \frac{3}{32}$ ins. ... **2/11 each**
,, **Extra Blades (Pin Pattern), No. 60,** $6 \times \frac{3}{32}$ ins. ... ... **10/6 per gross**
,, **Extra Blades (Pin Pattern), No. 65,** $6\frac{1}{2} \times \frac{3}{32}$ ins. ... ... **10/6 ,,**
In packets of 1 dozen

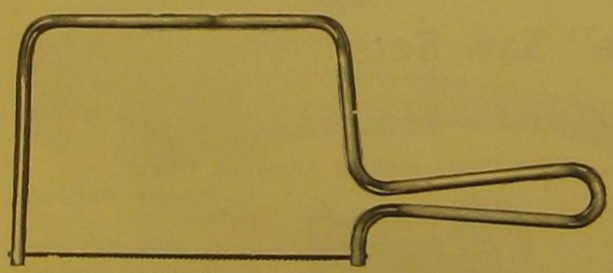

No. 44

No. 44

As illustrated, is a serviceable frame made from stiff wire stock $\frac{1}{4}$ in. diam., nickelled. Blades can be held in four directions. Holds blades, $6 \times \frac{1}{16}$ ins. or $6 \times \frac{3}{32}$ ins. Depth, 4 ins. Weight 5 ozs.

Price, with 1 doz. blades, $6 \times \frac{1}{16}$ ins. ... ... **1/- each**

Extra Blades—
Pin Pattern, No. 60, $6 \times \frac{3}{32}$ ins. ... **10/6 per gross**
,, ,, **No. 65,** $6\frac{1}{2} \times \frac{3}{32}$ ins. ... **10/6 ,,**
Loop ,, No. 50, $6 \times \frac{1}{16}$ ins. ... **5/- ,,**
In packets of 1 dozen, 5/10 per gross

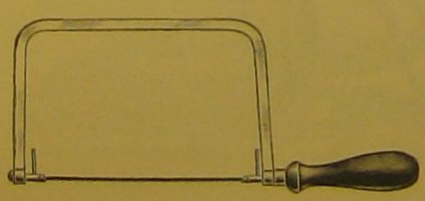

No. 38

No. 38

A very low priced but serviceable frame. The frame is made of stiff $\frac{1}{4}$-in. round steel stock that affords ample tension on the blade. Blades are faceable in four directions.

Nicely nickelled overall.

Price, with one blade ... ... **7/6 per doz.**



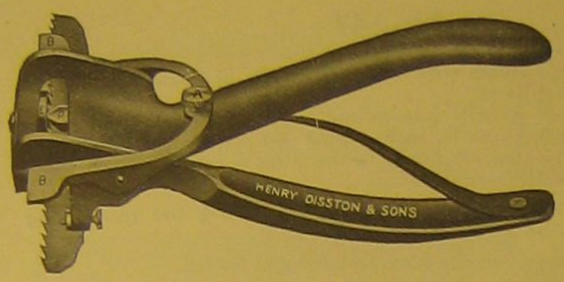
Mohawk-Shelburne Coping Saw No. 1400

(Made in U.S.A.)

A rigid durable frame of spring steel. **Blade is reversible in four directions** by means of the pins in the studs at either end of the frame. **Tension on blade adjusted by turning the handle of hardwood. Nickel-plated.** **Price** ... ... **2/- each**

Disston "Monarch" Saw Set

(Made in U.S.A.)



This Set is specially adapted for Hand Saws, Cross-cut Saws, Circular, and all small saws ¾ inch and wider.

In operating the Set, adjust first the die, bringing into use the edge having the bevel most suitable to the size of tooth to be set; then hang it on the saw so that the guide **B** rests on the teeth, adjust by screw **A** the depth of set to be given, being careful not to go too deeply into the tooth, but adjust so that the top of plunger **D** is in line with the top of the tooth. Next regulate set-screw **C** for amount of set required, using care in this particular not to put more set on the tooth than is absolutely necessary.

No. 2 ... ... **6/6 each**
,, 12 ... ... **7/3 ,,**

Disston "Triumph" Saw Set

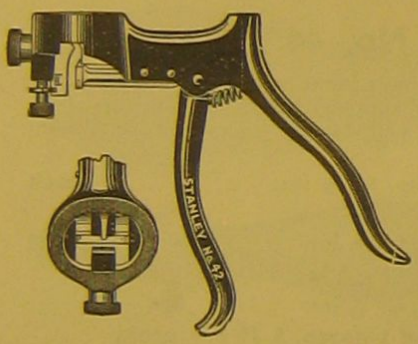
The principal feature in these Sets is the use of two plungers operated by the two handles: pressure on the lower handle forcing plunger **D** against the body of the saw. A continuation of the pressure on the upper lever operates plunger **C** in setting the tooth. If the gauge **B** is properly adjusted, the result will be a uniform set.

In operating, adjust the anvil so that the bevel most suitable for the size of tooth to be set is brought into position; hang the saw set on the saw so that the gauge **B** rests on the teeth, then adjust this gauge to the depth of set to be given by use of the set-screw **A**.

Use care not to go too deeply into the tooth, as all the set should be in the tooth itself. The top of plunger **C** should be in line with the top of tooth.

No. 8.	For Cross-cut and Circular Saws, etc.	**13/9 each**
,, 18.	For Small Circular Saws, etc.	**9/9 ,,**
,, 28.	For Hand, Back, Web, and Band Saws	**7/3 ,,**
,, 280.	For Saws with fine teeth, 10 to 16 points	**7/3 ,,**

Stanley "Pistol Grip" Adjustable Saw Set, No. 42



For Back and Panel Saws

The shape of the body and handle enables the user to operate the tool with great ease.

The saw is held firmly against the gauge while the tooth is being set, the tooth being in view all the time.

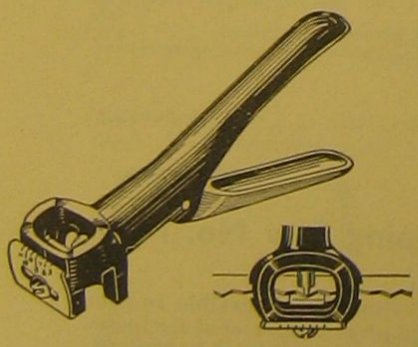
This set is readily adjusted to give greater or less set to the teeth of the saw.

The anvil is graduated enabling the same adjustment to be obtained for duplicate work.

Price, No. 42, weight 1 lb. (black finish) ... ... **6/6 each**

Stanley "Defiance" Saw Sets (Made in U.S.A.)

No. 422



A plier handle pattern and direct reading, with adjustable graduated plate for settings for 5 to 11-point saws.

When held on a saw, the teeth are in view and the plunger can be quickly placed against the tooth to be set.

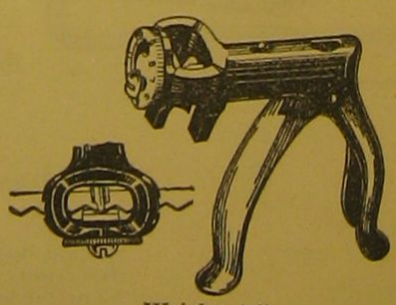
Blue finish.

Weight, ¾ lb.

Price ... 3/6 each

No. 432

With Direct-reading Adjusting Wheel



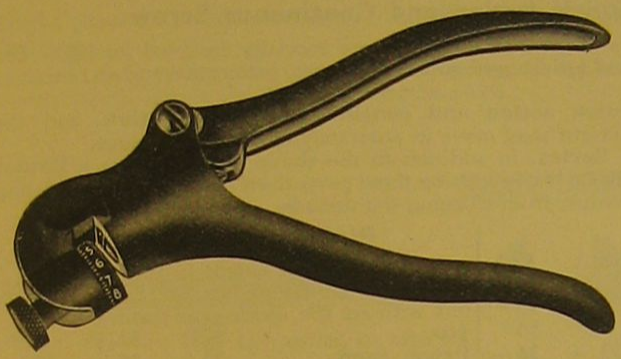
1. Popular Pistol-grip pattern.
2. A graduated wheel shows correct anvil setting for 5 to 11-point saws.
3. Saw teeth in plain view.
4. Easy operation.
5. Sturdy construction—plunger and anvil made of high-grade tool steel.

Green and Red Finish.

Weight, 1 lb.

Price ... 4/– each

SAW SETS



"Eclipse" Direct Reading Saw Set No. 77 (British Made)

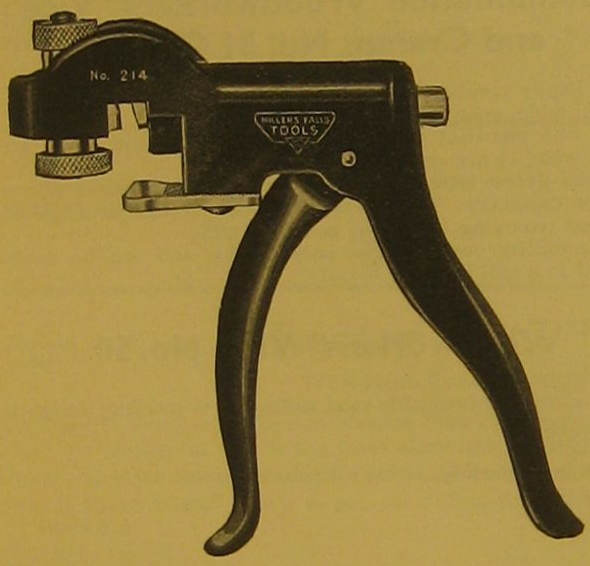
A precision tool of robust construction giving quick, uniform and accurate setting.

Direct reading adjustment gives settting for 4 to 12 point saws.

The anvil and setting plungers are of specially hardened and tempered steel.

Handles afford comfortable grip in a natural position.

Price ... ... **6/6 each**



Millers Falls Saw Set, No. 214

(Made In U.S.A.)

A sturdy tool with pistol grip and powerful leverage. **The hardened triangular shaped plunger** is easily visible and is simple to centre on the teeth.

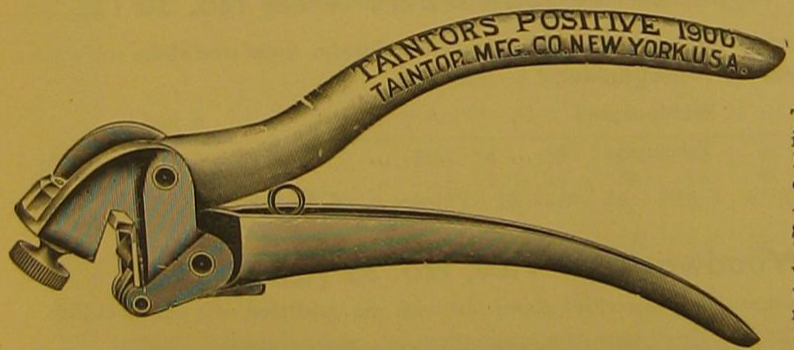
Positive and uniform set can be made to any saw with 4 to 12 teeth per inch.

Anvil is hardened and is adjustable for any pitch.

Guide is of steel and is adjustable.

Lever is malleable iron. All exposed parts are cadmium plated and the frame is black enamelled. Weight, 1⅜ lbs.

Price ... ... **6/6 each**



"Taintor" Positive Saw Set, No. 7

(Made In U.S.A.)

This Saw Set is made entirely of steel, and is very strong, light, and durable.
It is self-adjusting, except for the turning of the anvil to change the setting.
All parts are interchangeable and fully guaranteed.
The anvil has ten sides or faces, each of which is numbered, thus allowing for return to any setting. These numbers have no reference to the number of teeth to an inch.

Price ... ... **6/6 each**

Comet Saw Set, No. 5062

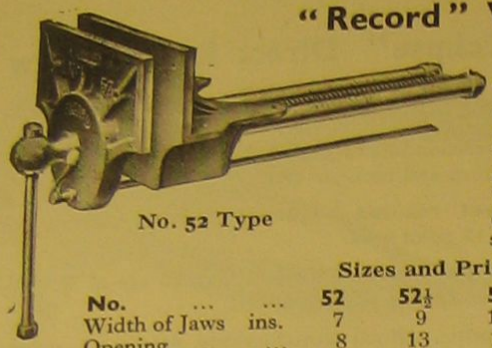
(Foreign)

Forged steel. Oxydised finish, knurled handles. Length, 7 ins.

No. 5062. Price ... **38/6 per doz.**

WOODWORKERS' VICES

"Record" Woodworkers' Vices, No. 52 Series (British Made)



No. 52 Type

Quick Action and Continuous Screw

These Vices are of great strength and are specially designed for high-class woodworking and for the general use of joiners, patternmakers, and cabinet-makers.

They have quick action and continuous screw motion, and the sliding rods of bright steel move in accurately machined housings.

The No. 52 A Series, in addition to the above features, have a **Patent Screw and Nut Cover** protecting these parts from damage and preventing shavings and sawdust from clogging the threads.

Sizes and Prices

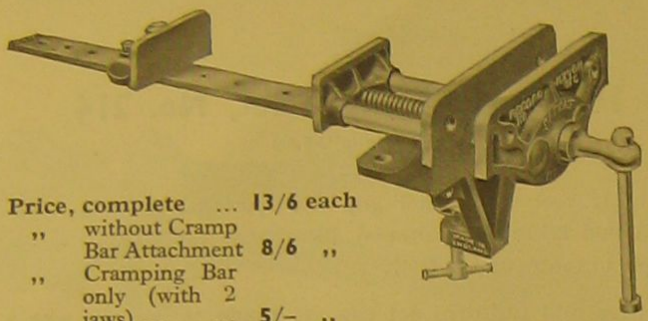
No.	52	52½	53	52A	52½A	53A
Width of Jaws ins.	7	9	10½	7	9	10½
Opening	8	13	15	8	13	15
Approx. weight lbs.	18	32	35	18	32	35
Price ... each	22/–	30/–	33/–	24/–	33/–	36/–

Plain Screw Type

(Without Patent Cover)

These are similar to No. 52 Type, for size, but without the quick-grip feature.

No.	52P	52½P	53P
Price, each ...	21/–	29/–	32/–



Price, complete ... 13/6 each
,, without Cramp Bar Attachment 8/6 ,,
,, Cramping Bar only (with 2 jaws) ... ... 5/– ,,

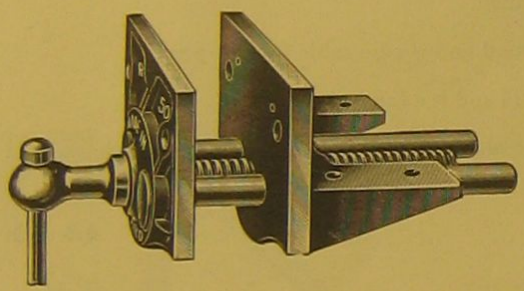
"Record" Junior Combination Woodworkers' Vice and Cramp, No. 51 C (British Made)

This handy combined Vice and Cramp can be fixed to any bench, table, post, or trestle.

Vice has parallel grip without side movement. Jaws are 6 ins. wide, 1⅜ ins. deep, and open 4½ ins.

Cramp grips taper or straight work and takes up to 32 ins. capacity. The cramping bar can be fixed or detached without removing vice from bench or table.

The complete outfit weighs only 10 lbs. and can be easily carried in a tool kit.

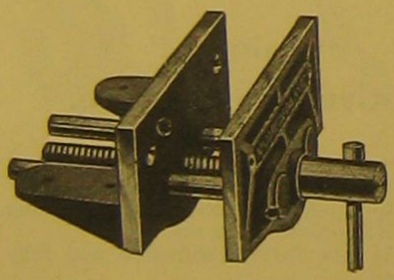


"Record" Woodworkers' Vice, No. 50 (British Made)

This Vice is fitted with unbreakable steel slides and is specially designed for light woodworking.

Width of jaws, 6 ins.; opening, 4½ ins.; depth, 2 ins.

Price ... ... 6/6 each



"Rededa" Woodworkers' Vice, No. 30 (British Made)

High tensile cast iron re-inforced face plate and body. Solid steel slides and screws. Cellulose red enamel finish.

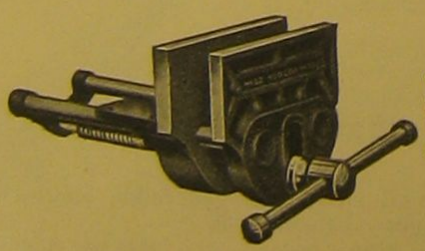
Width of jaws ... ... 6 ins.
Take up to ... ... 4½ ins.

Price ... 5/9 each

"Rededa" Woodworkers' Vice, No. 33 (British Made)

Similar in construction to the No. 30 illustrated and described above but with the **addition of a screw clamp for clamping the vice to bench.**

Price complete 7/– each



"Rededa" Woodworkers' Vice, No. 32 (British Made)

Quick adjusting type. To open or close the vice, lift the screw, push or pull the front jaw from or to the work and the screw drops back into the nut.

It cannot go wrong or get out of order.

Bright steel screws, slides and handle.

Jaws open ... ... 6 ins.
Width of jaws ... ... 6 ins.
Weight ... ... 10 lbs.

Price each 10/6

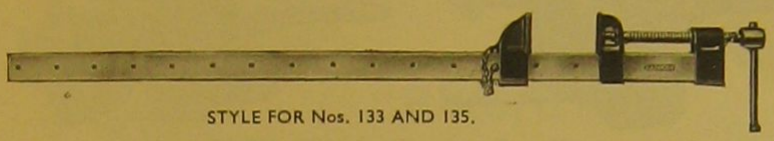
SASH AND "T" BAR CRAMPS

"Record" Sash Cramps, Nos. 131 to 135 (British Made)

Bright Steel Bar (Square Edges), Malleable Iron Head and Jaws. Finished Black. Bright Steel Screws and Handles.

Fitted with Bar Stop to prevent loose shoe from being lost. The sliding shoe has solid steel taper peg. Each cramp will admit between jaws 6 ins. less than lengths given.

STYLE FOR Nos. 131 AND 132.



STYLE FOR Nos. 133 AND 135.

Dimensions and Prices

Length of Bar ... ... ins.	24	30	36	42	48	54	60
Capacity ... ... ,,	18	24	30	36	42	48	54
No. 131. Section of Bar, $1\frac{1}{4}\times\frac{1}{4}$ in. Depth of Jaws, $2\frac{3}{8}$ ins. each	11/7	12/-	12/5	12/10	13/3	—	—
,, **132.** ,, ,, $1\frac{1}{2}\times\frac{5}{16}$,, ,, ,, $2\frac{3}{4}$,, ,,	14/10	15/5	16/-	16/7	17/2	17/9	18/4
,, **133.** ,, ,, $1\frac{1}{2}\times\frac{5}{16}$,, ,, ,, $2\frac{1}{4}$,, ,,	13/10	14/5	15/-	15/7	16/2	16/9	17/4
,, **135.** ,, ,, $1\frac{1}{4}\times\frac{1}{4}$,, ,, ,, 2 ,, ,,	11/5	11/10	12/3	12/8	13/1	—	—

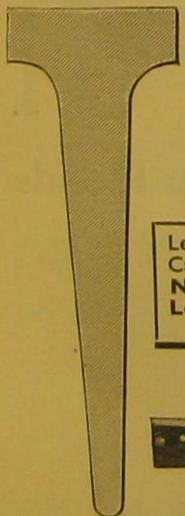
Lengthening Bars

Lengthening Bars for Cramp **No. 131** ... ... each	7/2	7/7	8/-	8/5	8/10	—	—
,, ,, ,, ,, ,, **132** ... ... ,,	8/10	9/5	10/-	10/7	11/2	11/9	12/4
,, ,, ,, ,, ,, **133** ... ... ,,	8/10	9/5	10/-	10/7	11/2	11/9	12/4
,, ,, ,, ,, ,, **135** ... ... ,,	7/2	7/7	8/-	8/5	8/10	—	—

"Record" "T" Bar Cramps (British Made)

With Non-Bending High Tensile Steel Bar

High tensile steel used in construction of these cramps prevents bending or springing in use.
The "T" edges on which the jaws slide are accurately machined and polished to ensure easy sliding movement.
Head and jaws are of malleable iron and the threaded part of the cramp in which the screw works in made extra long.
Stop is fitted at end of bar to prevent sliding shoe from being lost. Sliding Shoe has solid steel peg for easy adjustment.



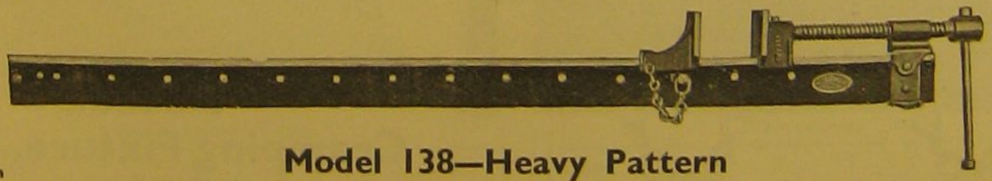
Heavy Pattern Full Size Section

Light Pattern Full Size Section

Model 136—Light Pattern

Section of Bar $1\frac{3}{4}\times\frac{1}{4}$ ins. Depth of Jaws $2\frac{1}{8}$ ins.

Length of Bar ... ... ins.	24	30	36	42	48	54	60	66	72
Capacity ... ... ,,	18	24	30	36	42	48	54	60	66
No. 136, Cramp, Price each	14/10	15/5	16/-	16/7	17/2	17/9	18/4	18/11	19/6
Lengthening Bars, No. 137, Extra ... ... each	7/8	8/3	8/10	9/5	10/-	10/7	11/2	—	—

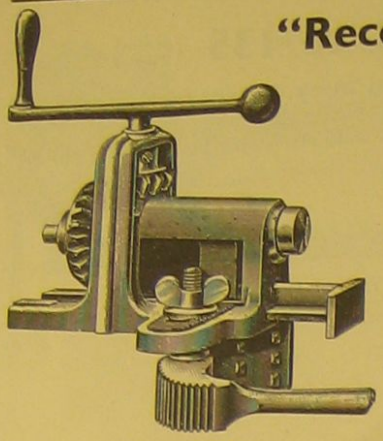


Model 138—Heavy Pattern

Section of Bar $2\frac{5}{8}\times\frac{7}{8}$ ins. Depth of Jaws $2\frac{1}{2}$ ins.

Length of Bar ... ... ins.	30	36	42	48	54	60	66	72	78	84
Capacity ... ... ,,	—	30	36	42	48	54	60	66	72	78
No. 138, Cramp, Price each	—	22/6	23/3	24/-	24/9	25/6	26/3	27/-	27/9	28/6
Lengthening Bars, No. 139, Extra ... ... each	10/9	11/6	12/3	13/-	13/9	14/6	15/3	16/-	—	—

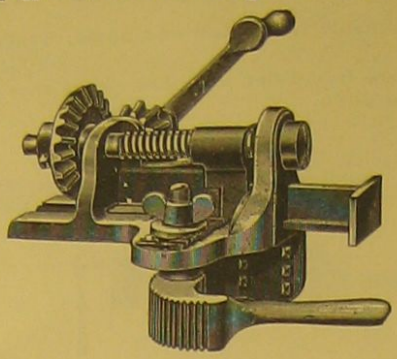
"Record" Flooring Cramps (British Made)



No. 151

Top Action. Cast Iron Body. Malleable iron fittings. Steel Screw. Approx. Weight, 28 lbs.

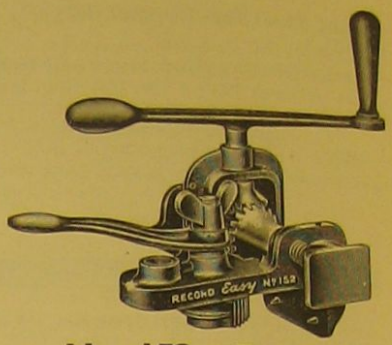
Size Nos. ...	1	2	3
To Suit Joists, ins.	1½–3½	1½–4½	1½–6
Price, each ...	25/9	26/6	27/3



No. 150

Side Action. Cast Iron Body. Malleable Iron Fittings. Steel Screw. Approx. Weight, 24 lbs.

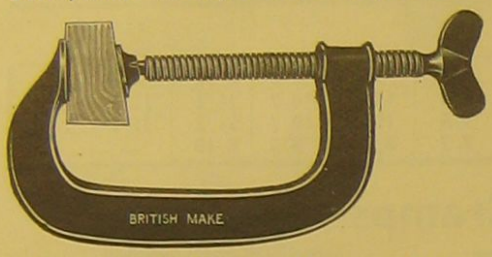
Size Nos. ...	1	2	3
To Suit Joists, ins.	1½–3½	1½–4½	1½–6
Price, each ...	24/3	25/–	25/9



No. 152 "Easy"

Unbreakable. All parts are either steel or malleable iron. Rapid screw action and positive grip. **Quick release from joist by lever.** Suitable for concrete floors. Approx. weight, 13 lbs. To suit Joists, 1½ to 4 ins.

Price ... ... 22/6 each



"Record" Ribbed "G" Cramps

(British Made)

A feature is the swivel shoe which adapts itself to any angle of grip. Frame is malleable iron. Screw is steel with machine-cut square thread. The 10-in. and 12-in sizes are fitted with drop handles.

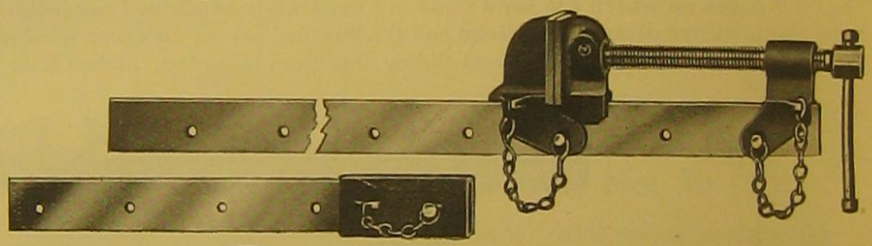
Capacity ...	2	3	4	5	6	7	8	9	10	12	ins.
Prices ...	2/6	3/–	4/–	5/–	6/–	7/–	8/–	9/–	10/–	13/6	each

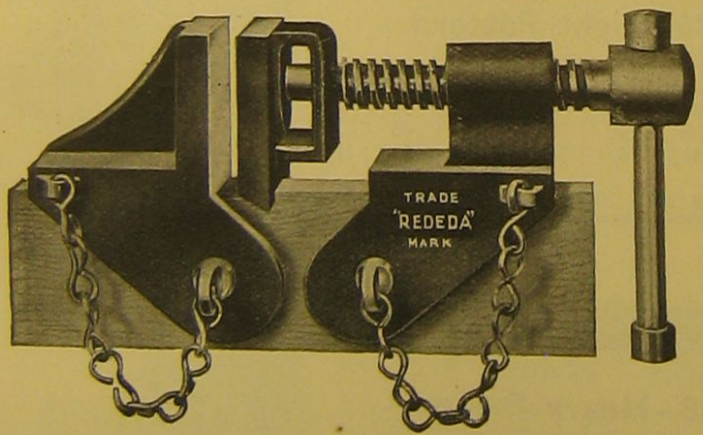
"Rededa" Adjustable Clamp Head, No. 254 (British Made)

This light clamp is very useful for assembling manufactured cabinet work, etc. **The bright steel bar** is 24 ins. long, ¾ inch wide and ¼ inch thick and has steel screw and handle.

Price ... ... 2/11 each

Extra for 12 inch long Lengthening Bar, 1/– each.





"Rededa" Cramp Heads

(British Made)

The cramps are very simple to use. A board 1 inch thick, any length drilled with a few holes is all that is necessary to fit them for any cramping job.

No. 252. Cast Iron, enamelled red 3/– per set
No. 256. Unbreakable, enamelled blue 4/– ,,

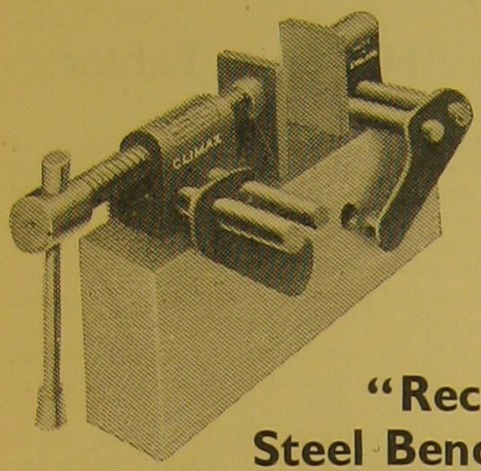
"Rededa" Cramping Fixture, No. 255

(British Made)

These Cramp fixtures are for use on a wood bar 1¼ × 2½ ins. (any length) the underside of which only requires notching. **The Sliding Head is supported by Iron Guides** to relieve strain on screws, when cramping irregular or taper stock.

Selected straight grain hard maple bar is recommended.

Price per Set (fixture only) 7/6



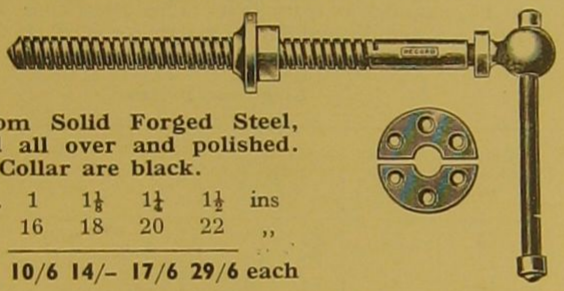
"Climax" Adjustable Cramp Heads

(British Made)

An excellent cramp appealing to the practical woodworker.
Both Jaws are square and are quickly adjusted to grip any thickness of board from $\frac{7}{8}$ up to $2\frac{7}{8}$ ins. thick.
All parts are interchangeable and the whole cramp is made of steel.
Width of Jaws, $1\frac{1}{2}$ ins. Height of Jaws, 2 ins. Approx. weight, $3\frac{3}{4}$ lbs.

Price ... ... **4/6 per set**

"Record" Steel Bench Screw Model 165 (British Made)

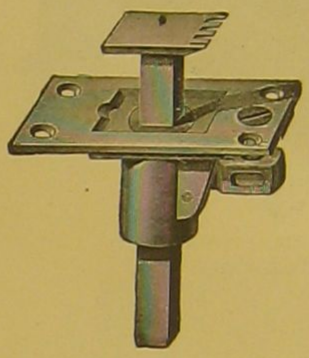


Made from Solid Forged Steel, machined all over and polished. Nut and Collar are black.

Size, diam.	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	ins
Length	16	18	20	22	,,

Price **10/6 14/- 17/6 29/6 each**

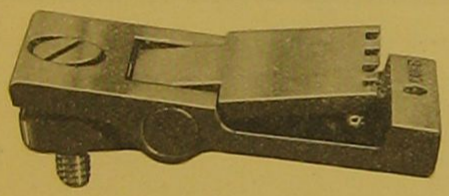
COMET Bench Stop (British Made)



Requires only a half turn of the screw to lock or release the stop.

When fitting the stop into bench, the clamping screw should always be towards the operator. Size of Top Plate $3\frac{1}{4} \times 1\frac{7}{8}$ inches.

Price ... **3/6 each**



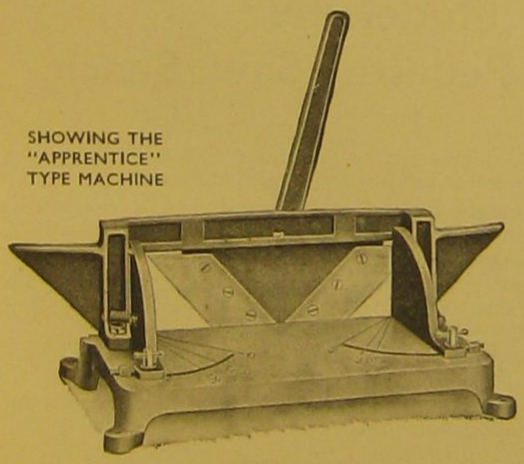
COMET Improved Bench Stop (British Made)

No. 201

Made of malleable iron, with wrought-iron screw and steel spring for regulating.

Price ... ... **1/6 each**

SHOWING THE "APPRENTICE" TYPE MACHINE



Patent Wood Trimmers (British Made)

"Apprentice" and "Improver" Types

These Patent Wood Trimmers are well-made, moderately priced tools, constructed in various styles as shown and meet all requirements called for in this class of tool. They can be equipped with all the special auxiliary devices which make them so superior in utility.
The knives of the "Apprentice" and "Improver" Type Machines are constructed so that they can be reversed and transposed when they become worn at the bottoms.
All the standard angles for cutting are plainly and accurately marked.
In the "Apprentice" Type, Nos. 0 and 1 are operated by lever through a pin and anti-friction roller, whilst Nos. 2 and 3 operate by cast-iron rack and quadrant.
The "Improver" Type is intended for better-class work, and is operated by a heavy fly-wheel through a steel rack and pinion, enabling practically the whole length of bed to be used for cutting.

"Apprentice" Type

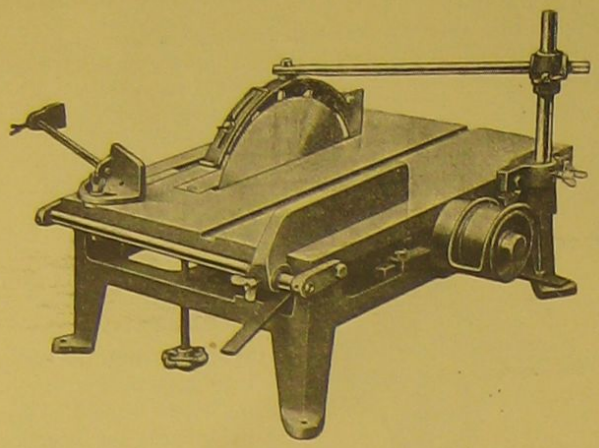
Sizes	0	1	2	3
Length of Cut ... ins.	4	9	11	13
Height ,, ... ,,	3	4	$5\frac{1}{2}$	6
Size of Bed ... ,,	$12 \times 5\frac{1}{2}$	18×8	23×10	$28\frac{1}{2} \times 12$
Net Weight ... lbs.	28	46	104	115
Prices	£4 10 0	£6 6 0	£10 10 0	£14 14 0
Extra Knives, per pair	1 5 0	1 15 0	2 5 0	2 15 0
Stands, extra	—	1 17 6	2 5 0	2 15 0

"Improver" Type

Sizes	1	2	3
Length of Cut ... ins.	13	16	20
Height ,, ... ,,	4	$5\frac{1}{2}$	6
Size of Bed ... ,,	18×8	23×10	28×12
Net Weight ... lbs.	89	124	140
Prices	£11 0 0	£15 0 0	£18 10 0
Extra Knives, per pair	1 15 0	2 5 0	2 15 0
Stands, extra ...	1 17 6	2 5 0	2 15 0

Model "H" Saw Tables

(British Made)



MODEL "H"—10-INCH SAW TABLE WITH TILTING TABLE

These Saw Tables will be found suitable for a variety of work on metal, fibre, hardwood, etc., but care should be taken when ordering to state the material for which they are required in order that a suitable saw may be supplied.

10-inch, 12-inch, and 15-inch machines are very useful for heavy sizes of work and are equipped with a tilting table.

The tables are accurately planed and have deep grooves to take the swivelling mitre fence and dead length gauge.

Saw Spindles are mounted in self-aligning type ball bearings.

Equipment included in price:—For all machines, a saw, swivelling mitre fence, and guard.

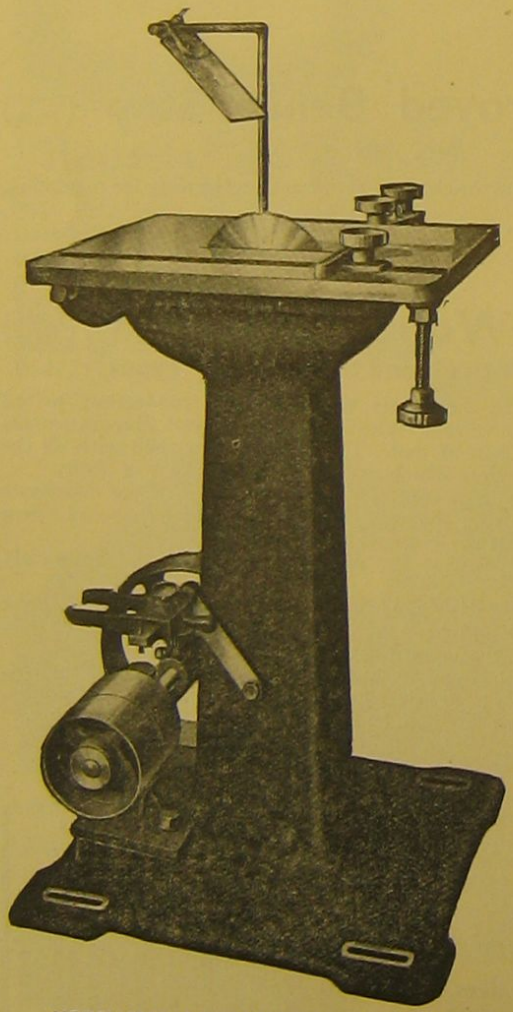
A rapid tenoning attachment with quick release, for use on the 10-inch, 12-inch, and 15-inch machines, can also be supplied at extra cost.

A fret-sawing attachment, for use on the 15-inch machines, can be supplied at extra cost. This attachment is operated by the saw spindle and has a capacity for work up to $1\frac{1}{2}$ inches thick.

Sizes and Prices

Diam. of Saw Ins.	Depth of Cut Ins.	Size of Table Ins.	Size of Pulleys Ins.	Net Weight Lbs.	Price Including above equipment
10	$3\frac{1}{8}$	20 × 16	$3\frac{1}{4} \times 1\frac{1}{2}$	100	£8 10 0
12	$4\frac{1}{2}$	20 × 16	$3\frac{1}{4} \times 2$	105	8 15 0
15	$4\frac{1}{2}$	$24\frac{1}{2} \times 18$	$3\frac{3}{4} \times 2\frac{1}{4}$	—	10 2 0

Extra for Stand for 10 or 12-in. machines £1 15 0
" " " " 15-in. " 2 5 0
" " Tenoning Attachment for 10, 12, or 15-in. machines 3 0 0
" " Fret-sawing Attachment on Stand for 15-in. machines 4 5 0



MODEL "N"—8-INCH PEDESTAL SAW BENCH

Model "N"
8-inch Pedestal Saw Bench

(British Made)

This machine has been designed to perform the most delicate work and contains many desirable features and improvements.

The table is accurately planed and hinged, and is elevated by means of a screw, so that the amount of saw projection can be varied.

An extension piece is added to the table to permit full use of table with the parallel fence in position. A Vernier gauge is fitted to the parallel fence, giving fine and accurate adjustment. The left-hand fence can be set to any angle and locked in position.

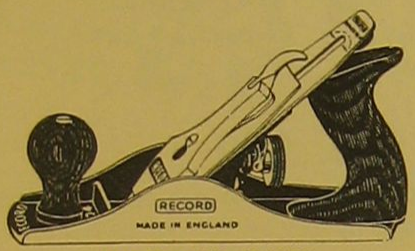
The spindle is mounted in long bearings, provided with ample lubrication.

A suitable countershaft is mounted on the bed of the machine, but can be replaced by a motor when required.

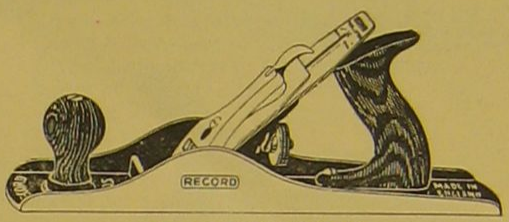
Diam. of Saw	ins.	8
Depth of Cut	"	$2\frac{1}{4}$
Size of Table	"	22 × 22
Saw speed, max.	r.p.m.	3800
Countershaft F. & L. pulley diam. and face	ins.	6 × 3
" speed (for 8" Saw)	r.p.m.	560
Floor space	ins.	24 × 24
Net weight, approx.	lbs.	340
Gross " (ocean shipment), approx. ...	"	400
Cubic contents (approx. shipment) ...	cu. ft.	24
Price, complete with Countershaft ...		**On application.**
" without Countershaft ...		"

"Record" Adjustable Iron Planes

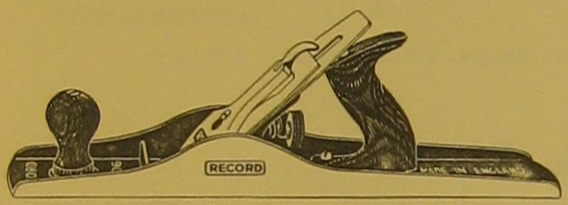
"Record" Planes are high-class, well finished tools built to give years of hard service.
A prominent feature is the **Tungsten Steel Cutting Iron** which retains its fine edge considerably longer than the usual type of plane iron. Cutting irons are hardened and tempered and precision ground all over.
Accuracy and uniformity is assured by careful hardening and tempering processes and every "Record" Iron is tested before leaving the works. Lever cap, all small screws and parts are nickelled. Body and Frog finished cellulose blue. Base and sides ground and polished.
All parts interchangeable. Spare irons and other parts can be supplied.



Nos. 02 to 04½. PLANES



Nos. 05 and 05½. PLANES



Nos. 06 to 08. PLANES

Nos. 05 and 05½ WITH CORRUGATED BOTTOM

Prices of Planes with Ordinary or Stay-Set Cap Irons

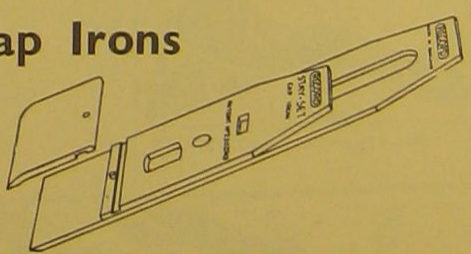
Smooth Bottom			Corrugated Bottom						
Nos.		Price Each	Nos.		Price Each	Style	Length Ins.	Cutter Ins.	Weight Lbs.
Ordinary	Stay-Set		Ordinary	Stay-Set					
02	02 SS	12 6	02 C	02 C-SS	13 6	Smooth	7¼	1⅝	2¼
03	03 SS	13 0	03 C	03 C-SS	14 0	,,	8	1¾	3¼
04	04 SS	13 6	04 C	04 C-SS	14 6	,,	9	2	3¾
04½	04½ SS	16 0	04½ C	04½ C-SS	17 0	,,	10	2⅜	4¾
05	05 SS	16 6	05 C	05 C-SS	17 6	Jack	14	2	4¾
05½	05½ SS	18 6	05½ C	05½ C-SS	20 0	,,	15	2¼	6¾
06	06 SS	21 0	06 C	06 C-SS	22 6	Fore	18	2⅜	7¾
07	07 SS	25 0	07 C	07 C-SS	27 0	and	22	2⅜	8
08	08 SS	30 0	08 C	08 C-SS	32 0	Jointer	24	2⅜	9¾

"Record" Stay-Set Cap Irons

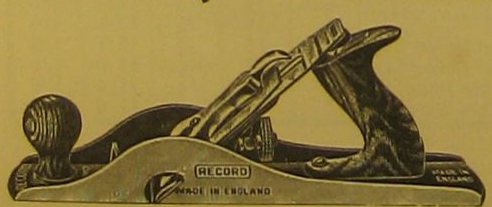
Add greatly to solidity and firmness of the entire cutting unit.

The Cutter can be honed or sharpened without unscrewing or removing the Cap Iron. The Deflector is simply lifted clear of the Cutter to allow it to be sharpened, and when replaced the same setting is maintained without any adjustment.

The Cutter can be honed many times before it is necessary to reset the Cap Iron.



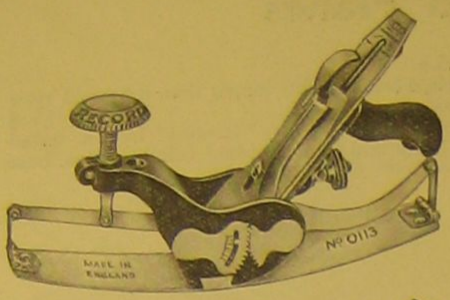
Adjustable Rabbet Planes, Nos. 010½ and 010



For Carriage Makers.
With end and side adjustment of Cutter.

No.	Length Ins.	Cutter Ins.	Weight Lbs.	Price Each	Spare Irons	
					Single	Double
010½	9	2⅛	3	£1 1 6	2/6	4/-
010	13	2⅛	4¼	1 3 0	2/6	4/-

"Record" Circular Planes



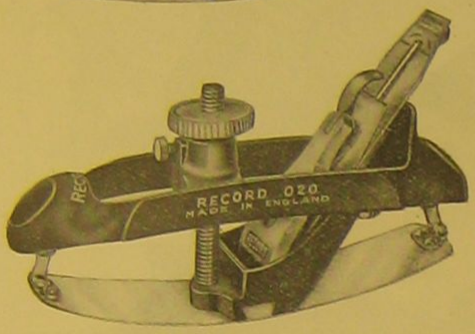
No. 0113

The steel face in this plane is anchored in the centre and adjusted at the ends by means of a screw controlling two levers. The toothed segment plates are graduated to provide for setting to correct radii.

Length, 10 ins. Cutter, 1¾ ins. Weight, 3½ lbs.

Price ... ... £1 7 0 each

Spare Cutters—Single, 2/3; Double, 3/9 each



No. 020

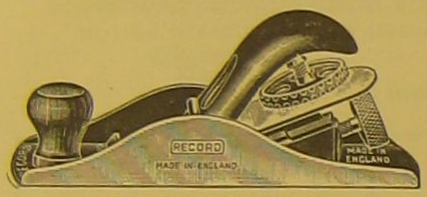
The flexible spring steel face is anchored at each end of the body and is screw adjusted from the centre.

Length, 10 ins. Cutter, 1¾ ins. Weight, 3¾ lbs.

Price ... ... £1 7 0 each

Spare Cutters—Single, 2/3; Double, 3/9 each

"Record" Block Planes

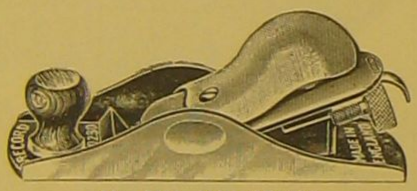


No. 0120. ADJUSTABLE
No. 0110. NON-ADJUSTABLE

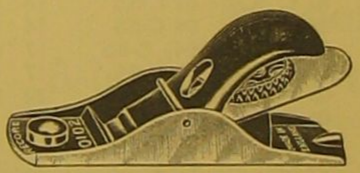
No. 0220. ADJUSTABLE

No. 0130. DOUBLE END NON-ADJUSTABLE

Can be used for ordinary work, and cutter and cap reversed for use as a Bull Nose Plane.

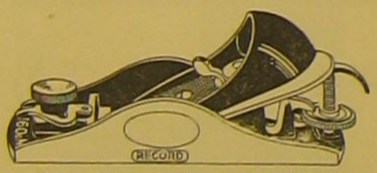


No. 0230. ADJUSTABLE

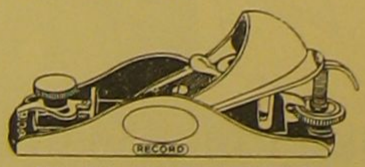


No. 0102. NON-ADJUSTABLE

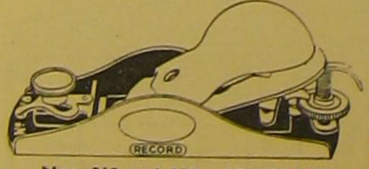
No. 0101. NON-ADJUSTABLE



Nos. 09½ and 015. ADJUSTABLE



Nos. 016 and 017. ADJUSTABLE

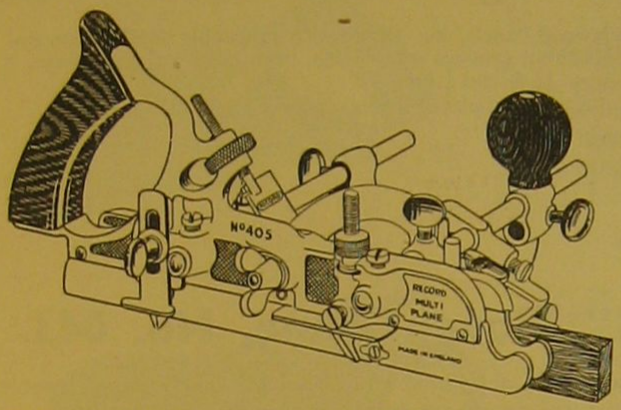


Nos. 018 and 019. ADJUSTABLE

Dimensions and Prices

No.	Style	Length Ins.	Width of Cutter Ins.	Weight Lbs.	Price complete	Spare Irons Each
0110	Non-Adjustable	7	1 5/8	1 3/8	4/-	1/3
0120	Adjustable	7	1 5/8	1 3/8	5/6	1/6
0220	Adjustable	7	1 5/8	1 1/2	5/6	1/6
0130	Non-Adjustable—Double End	8	1 5/8	1 5/8	6/-	1/3
0230	Adjustable—Knuckle Joint ...	6	1 5/8	1 5/8	9/6	1/6
0102	Non-Adjustable	5½	1 5/8	¾	2/6	1/-
0101	Non-Adjustable	3½	1	¼	2/-	8d.
09½	Adjustable	6	1 5/8	1 1/2	8/-	1/6
015	Adjustable	7	1 5/8	1 5/8	10/-	1/6
016	Adjustable-Nickel Lever Cap	6	1 5/8	1 1/2	10/9	1/6
017	Adjustable-Nickel Lever Cap	7	1 5/8	1 5/8	11/6	1/6
018	Adjustable-Knuckle Joint ...	6	1 5/8	1 1/2	11/6	1/6
019	Adjustable-Knuckle Joint ...	7	1 5/8	1 5/8	12/6	1/6

"Record" "No. 405" Plane



23 Standard Cutters are supplied with the plane.

Weight, 9½ lbs.

Price, complete ... £3 0 0

With 23 Steel Cutters

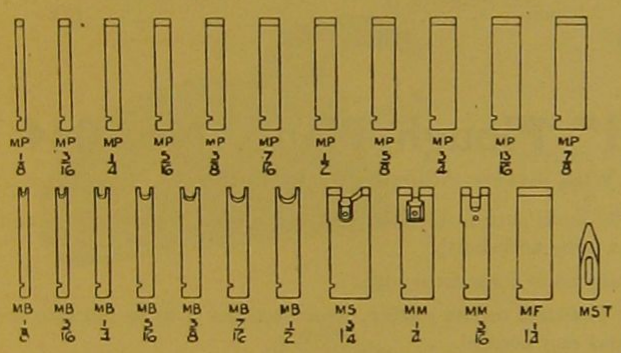
This Multi-plane, will perform many planing operations required by the Cabinet Maker and Joiner, as follows:—

1. Ploughing.
2. Dadoing.
3. Beading.
4. Centre Beading.
5. Rabbeting and Filletstering.
6. Match Planing.
7. Sash Planing.
8. Slitting.

The "Record" Multi-Plane possesses the following features:—

Screw Adjustment to the Cutter.
Screw Adjustment to the Fence.
Screw Adjustment to the Depth Gauge.
2 sets of Arms (Long and Short).
Beading Stop.
Slitting Cutter Stop.
Sliding Section Depth Gauge.
Cam Steady.
Spurs for Cross Grain Work.

The metal parts are all Rustless Plated, and the Handle, Knob and Fence are of selected Rosewood. Packed complete in box.

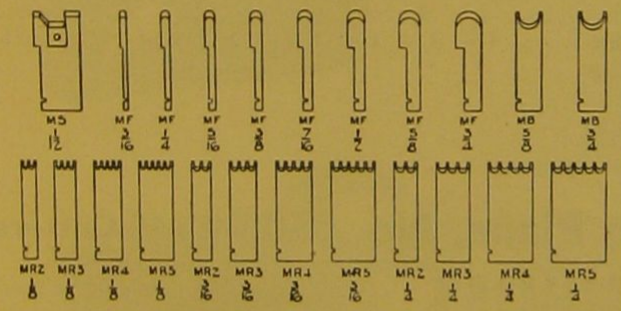


Prices of Standard Cutters.

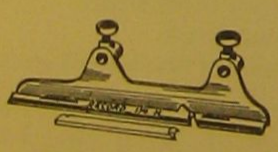
Size Ins.	Type	Price Each	Size Ins.	Type	Price Each
1/8	Plough and Dado Tool	1/3	1/8	Beading Tool ...	1/3
3/16	" " ...	1/3	3/16	" ...	1/3
1/4	" " ...	1/3	1/4	" ...	1/3
5/16	" " ...	1/3	5/16	" ...	1/9
3/8	" " ...	1/9	3/8	" ...	1/9
7/16	" " ...	1/9	7/16	" ...	2/-
1/2	" " ...	1/9	1/2	" ...	2/-
5/8	" " ...	1/9	1¼	Sash Tool ...	4/3
3/4	" " ...	1/9	¼	Match Tool ...	4/3
15/16	" " ...	2/-	3/16	" ...	4/3
7/8	" " ...	2/-	1¼	Filletster ...	2/-
			—	Slitting Tool ...	2/6

Complete set of 23 CUTTERS as above ... 29/- set

Additional Cutters not supplied as regular equipment.



Size Ins.	Type	Price Each	Size Ins.	Type	Price Each
1½	Sash Tool ...	4/3	1/8	Beading Tool	2/6
5/16	Fluting Tool ...	2/6	3/16	"	2/6
1/4	" ...	2/6	1/8	Reeding Tool, 2 Beads	1/9
5/16	" ...	2/6	1/8	" 3 " ...	2/6
3/8	" ...	2/6	1/8	" 4 " ...	3/3
7/16	" ...	2/6	1/8	" 5 " ...	4/3
1/2	" ...	2/6	3/16	" 2 " ...	1/9
5/8	" ...	2/6	3/16	" 3 " ...	2/6
3/4	" ...	2/6	3/16	" 4 " ...	3/3
1¼	Ovolo Tool ...	4/-	3/16	" 5 " ...	4/3
5/16	" ...	4/-	1/4	" 2 " ...	1/9
3/8	" ...	4/-	1/4	" 3 " ...	2/6
			1/4	" 4 " ...	3/3
			1/4	" 5 " ...	4/3



No. 10 Hollow.

No. 10 Round.

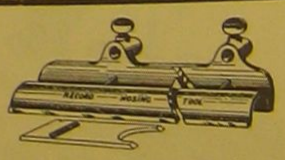
Hollows & Rounds

For use with No. 405 planes. A Hollow and cutter will form a round, and a Round and its Cutter forms a Hollow.

Sold in Sets comprising 1 Hollow; 1 Round and 2 Cutters.

Hollow and Rounds

No. 6	¼ in. Cutters	Works ¾ in. Circle ...	**Price 10/- per Set**
No. 8	⅜ " "	" 1 " "	**10/- "**
No. 10	½ " "	" 1¼ " "	**11/- "**
No. 12	1 " "	" 1½ " "	**11/- "**
Extra CUTTERS for Hollows or Rounds			**1/9 each**



No. 5 Nosing Tool.

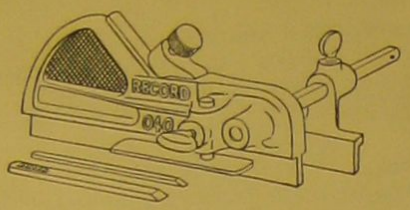
Nosing Tools

For use with No. 405 Plane, for shaping edges of stair treads, etc.

No. 5—1⅛" Cutter works 1½" circle.

Price 8/- per Set

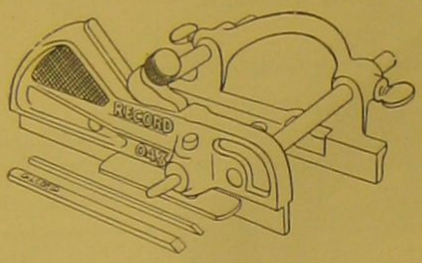
Extra CUTTERS for Nosing Tool, **2/- each**



"Record" Plough Plane, No. 040 (British Made)

Suitable for grooving Plywood Panels, etc. Fitted with adjustable depth gauge and Single Arm Fence, and will cut grooves up to 3 ins. from edge and ½ in. deep. 3 steel cutters supplied sizes. ⅛, 3/16 and ¼ ins.
Body, blue cellulose finish. Nickel-plated fittings. 5½ ins. long. Weight, 1 lb.

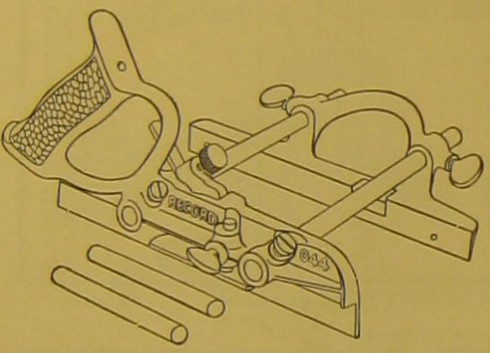
Price, complete **6/6**
Extra Cutters, ⅛, 3/16 ... ... **1/- each**
,, ,, ¼ in. ... ... **1/3** ,,



"Record" Plough Plane, No. 043

For Grooving Plywood Panels, etc. Fitted with Adjustable Depth Gauge. Double Arm Bridged Fence, and will cut grooves ½ inch deep up to 4 ins. from edge.
3 steel Cutters supplied sizes ⅛, 3/16 and ¼ inches. 5½ ins. long. Weight 1¼ lbs. Rustless Plated.

Price complete **9/6**
Extra Cutters, ⅛ and 3/16 ... ... **1/- each**
,, ,, ¼ inch. ... ... **1/3** ,,

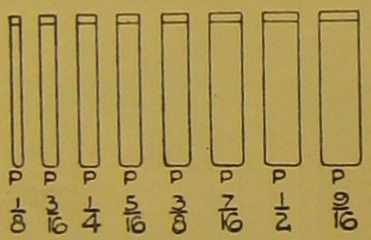


"Record" Plough Plane, No. 044

With Screw Adjustment to Cutter.

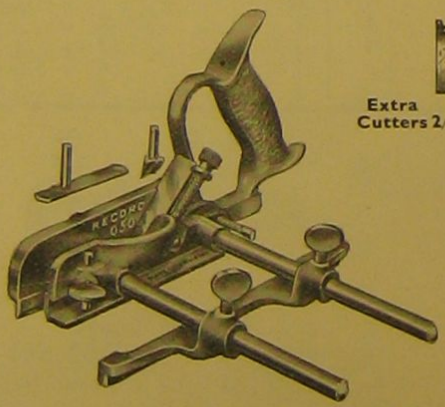
Fitted with adjustable depth gauge. Double Arm Adjustable Bridged Fence and 2 pairs of Fence arms (long and short).
Cuts grooves ⅝ ins. deep up to 5 ins. from edge.
Screw adjustment is fitted to the cutter, which enables it to be fed into the work with accurate and easy control.
8 Steel Cutters as illustrated are supplied with each Plane.

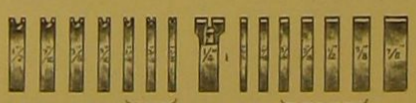
8½ ins. long. Weight, 2¾ lbs. Rustless Plated. **Price ... complete 17/6**



Extra Cutters Size ...	⅛	3/16	¼	5/16	⅜	7/16	½	9/16 ins.
Price ...	1/-	1/-	1/3	1/3	1/9	1/9	1/9	1/9 each

"Record" Light Combination Plane, No. 050 with 15 Cutters





Extra Cutters 2/- 2/- 1/9 1/9 1/3 4/3 1/3 1/3 1/9 2/- Each

This Plane is for light work and can be used for plough, beading, matching, and rabbet work. It is fitted with Spurs, Depth Gauge.

Fitted with Cutter Adjusting Screw.

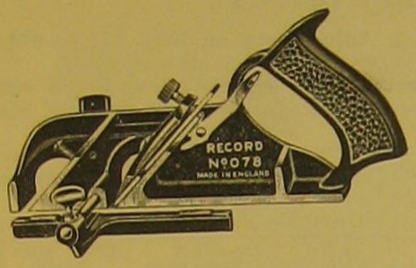
Shavings deflector and fence with 5-inch adjustment. Finish is nickel-plated.
The 15 Cutters comprise the following:—

Plough and Dado ... ... ¼ 5/16 ⅜ 7/16 ½ ⅝ ⅞ in.
Beading ... ... ⅛ 3/16 ¼ 5/16 ⅜ 7/16 ½ ,,
Tonguing ... ... ¼ in.

The plane is 9¼ ins. long and weighs 3½ lbs.

No. 050 — **Price, complete** with 15 Cutters ... **27/6 each**
No. 050A— ,, ,, with 17 Cutters ... **30/-** ,,

The 2 extra Cutters supplied with No. 050A are ⅛ and 3/16 in., suitable for 3-ply wood and are with clamping bracket.
Extra for Cutter Clamping Bracket and 1 each ⅛ and 3/16 in. Cutters, if supplied separately **3/-**



"Record" Rabbet Planes

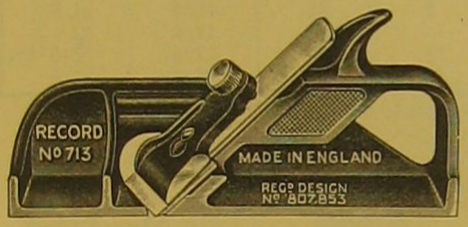
Duplex Rabbet and Filletster Plane, No. 078

With two cutter positions. Fitted with hardened steel spur, removable and adjustable depth gauge and adjustable fence which can be used on either side of the plane.

Length, 8½ ins. Cutter, 1½ ins. Weight, 3 lbs.

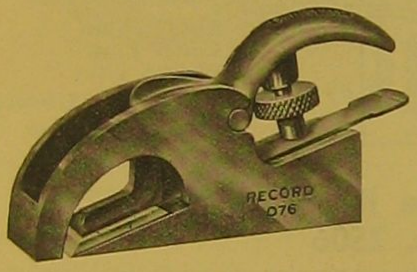
Price ... ... 11/3 each; Spare Irons, 1/9 each

Skew Rabbet Planes, Nos. 712 to 714



Lie perfectly flat on either side, and fitted with a detachable Adjustable Depth Gauge.
The Tungsten Steel skew cutter also enables the Plane to be used for rabbeting across the grain.

No.	Length Ins.	Width Cutter Ins.	Weight Lbs.	Price Each	Extra Cutters Each
712	8	1¼	2½	7 0	1 9
713	8	1½	2¾	7 9	2 0
714	8	1¾	3	8 6	2 3



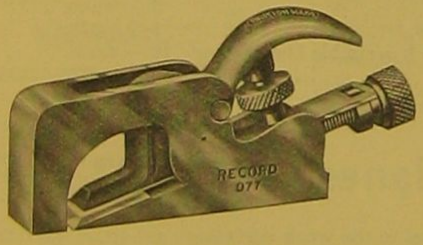
Bull Nose Rabbet Plane, No. 076

Non-adjustable.

The bottoms and sides of these planes are accurately machined and ground.
Tungsten steel cutters are fitted.

Length, 4 ins. Cutter, 1⅛ ins. Weight, 1 lb.

Price ... ... 6/3 each; Spare Irons, 1/6 each.



Bull Nose Rabbet Plane, No. 077

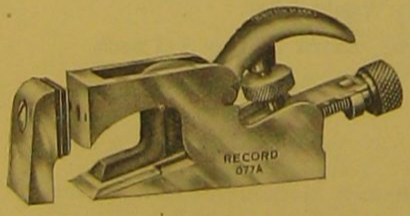
Adjustable

For fine work where extreme accuracy is required.
Provided with screw adjustment for regulating the depths of cut, and fitted with tungsten steel cutters. Nickel-plated.

Length, 4 ins. Cutter, 1⅛ ins. Weight, 1¼ lbs.

Price ... ... 10/– each

Spare Irons ... ... 1/9 ,,



Bull Nose Rabbet Plane, No. 077A

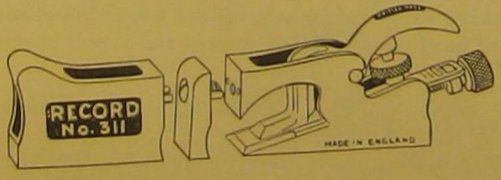
With Cutter and Mouth Adjustment and Detachable Nose. Rustless Plated.

For very accurate work. An improved adjustable mouth has been embodied by fitting two steel distance pieces between the detachable nose and plane body. This gives four varying openings for coarse or fine work.
Can be used as a chisel plane by removing nose. Fitted with Screw adjustment and tungsten steel cutter.

Length, 4 ins. Cutter, 1⅛ ins. Weight, 1¼ lbs.

Price ... ... 11/6 each

Spare Irons ... ... 1/9 ,,



"Three-in-One" Plane, No. 311

Bull Nose; Shoulder Rabbet; and Chisel Plane.

The No. 311 is a Rustless Plane and combines three planes in one. It can be used either as a Shoulder Rabbet, Bull Nose Rabbet or Chisel Plane.
These Planes have screw adjustment on the cutter for regulating the depth of cut and are fitted with Tungsten Steel Cutters.

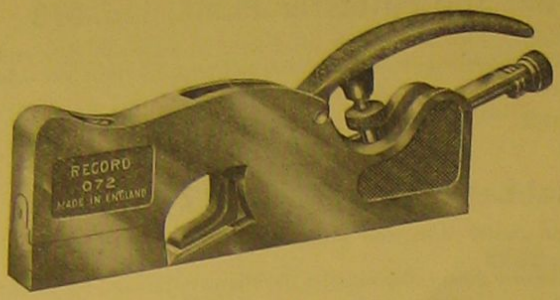
Length, 6 ins. Cutter, 1⅛ ins. Weight, 2 lbs.

Price, complete ... ... 16/6 each

Spare Irons ... ... 1/9 ,,

RABBET & ROUTER PLANES

"Record" Shoulder Rabbet Planes



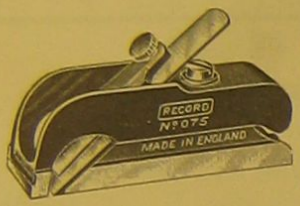
With Cutter and Mouth Adjustment on Nos. 072 to 074 Rustless Plated. For very fine and accurate work.
Being accurately machined and ground, these planes will lie quite flat on either side and can be used both right and left hand.
The improved screw adjustment to the mouth has been embodied in **Nos. 072, 073** and **074** and gives a wide range for either coarse or fine work.
Tungsten steel cutters are regulated for depth of cut by a screw.

No.	Length, Ins.	Cutter, Ins.	Weight, Lbs.	Price Each	Spare Irons Each
*041	5	$\frac{5}{8}$	$1\frac{1}{2}$	11/6	1/6
*042	8	$\frac{3}{4}$	$2\frac{3}{4}$	16/6	1/9
072	$8\frac{1}{2}$	1	$3\frac{1}{4}$	19/6	2/-
073	$8\frac{1}{2}$	$1\frac{1}{4}$	4	22/6	2/3
074	$8\frac{1}{2}$	$1\frac{1}{2}$	$4\frac{3}{4}$	25/6	2/6

***Nos. 041** and **042** made only with Non-Adjustable Mouth.

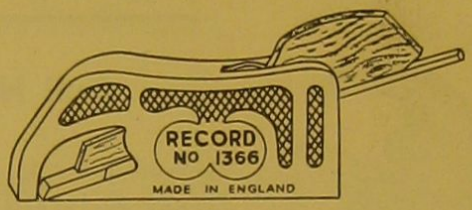
"Record" Bull Nose Rabbet Planes

No. 075



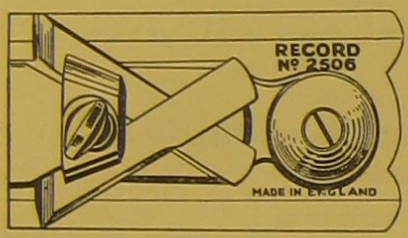
For use in corners, etc., has adjustable mouth.
Length, 4 ins.
Cutter, 1 in.
Weight, 10 ozs.
Price ... 2/6 each
Spare Irons, 1/6 ,,

No. 1366



Rustless Plated with Rosewood Wedge.
Length, 4 ins.
Cutter $\frac{3}{8}$ ins.
Weight, $\frac{1}{4}$ lb.
Price ... 5/6 each
Spare Cutter, 1/6

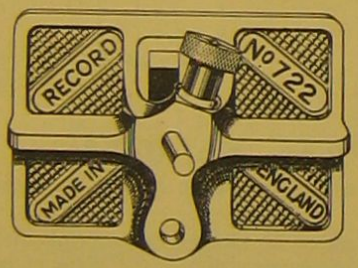
"Record" Side Rabbet Planes, No. 2506



Rustless Plated. For side rabbeting and cleaning grooves in mouldings, etc. The nose can be removed for working close up into corner. Weight $\frac{3}{4}$ lb.

No. 2506	**8/– each**
Extra Cutters	**1/9 pair**
No. 2506S with Adjustable and Reversible Depth Stop	**10/– each**
Extra Cutters	**1/9 pair**

"Record" Router Planes, No. 722 (British Made)



For cutting grooves parallel to the work surface.
There are two holes in the body for the cutter.
Width of Cutter, $\frac{1}{4}$ inch Weight $\frac{1}{2}$ lb.
Price ... ... 3/6 each; Extra Cutters 1/3 each.

The Latest Publication on Modern Methods of Hand Planing.

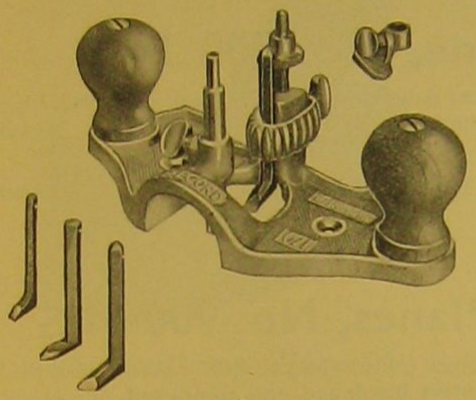
"Planecraft"

This interesting and helpful volume containing 136 pages and 200 illustrations and diagrams is of utmost service to any woodworker. There are 17 informative chapters on modern methods of hand planing, nicely printed and bound in cloth cover, size 9 in. × 6 in.

Price ... ... 1/6 each

ROUTER PLANES, PLANE IRONS AND PARTS

"Record" Router Planes

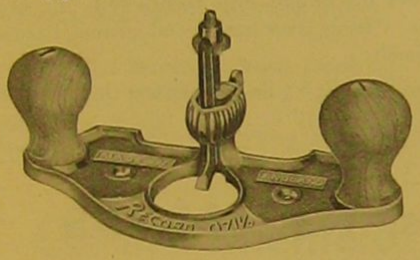


No. 071. With Open Throat

Cutters are adjustable and can be secured either to the front or back of the cutter post, according to work to be done. For narrow surfaces there is an adjustable shoe for closing the throat and regulating depth of cut.

Length, 7½ ins. Three Cutters, ¼ in., ½ in., and smoothing. Weight, 2 lbs.

Price, complete ... ... **15/– each**
Extra Cutters ... ... **2/6 ,,**

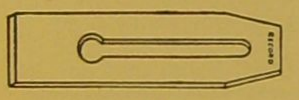


No. 071½. With Closed Throat

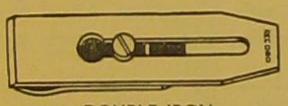
Length, 7½ ins. Three Cutters, ¼ in., ½ in., and smoothing. Weight, 2 lbs.

Price, complete ... ... **12/– each**
Extra Cutters ... ... **2/6 ,,**

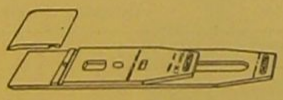
"Record" Plane Irons



SINGLE IRON



DOUBLE IRON



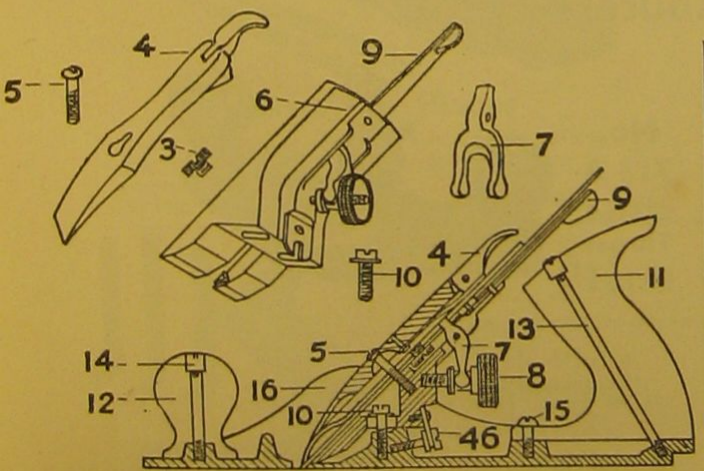
CUTTER WITH STAY-SET CAP IRON & SCREW

Made of Tungsten Steel, hardened, tempered and precision ground all over.

For Plane No.	Type	Width of Cutter Inches	PRICE EACH: Single Cutter	PRICE EACH: Cutter complete with Ordinary Cap Iron and Screw	PRICE EACH: Cutter complete with STAY-SET Cap Iron and Screw	STAY-SET Cap Iron only
02	Smooth	1⅝	1/9	3/3	4/3	2/6
03	,,	1¾	2/3	3/9	4/9	2/6
04	,,	2	2/3	3/9	4/9	2/6
04½	,,	2⅜	2/9	4/3	5/3	2/6
05	Jack	2	2/3	3/9	4/9	2/6
05½	,,	2¼	2/9	4/3	5/3	2/6
06	Fore	2⅜	2/9	4/3	5/3	2/6
07	Jointer	2⅜	2/9	4/3	5/3	2/6
08	,,	2⅝	2/9	4/3	5/3	2/6

All Spare Irons are interchangeable, and when ordering, Plane No. should be stated and exactly which type is required.

Parts for "Record" Planes



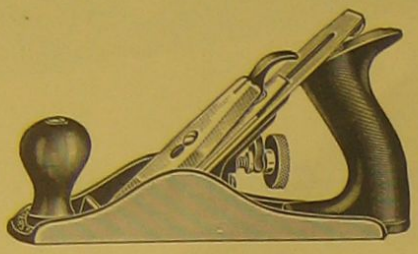
Ref. No. on Diagram	Name of Part	For Plane No. 02	03	04	04½	05	05½	06	07	08	010	010½
3	Cap Screw	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
4	Lever Cap	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-
5	Lever Cap Screw ...	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
6	Frog, complete ...	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-
7	"Y" Adjusting Lever	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
8	Adjusting Nut ...	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.
9	Lateral Adjusting Lever	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.
10	Frog Screw ...	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
11	Plane Handle ...	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9
12	Plane Knob ...	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
13	Handle Bolt and Nut	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.
14	Knob Bolt and Nut	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.	9d.
15	Handle Toe Screw	—	—	—	6d.	6d.	6d.	6d.	6d.	6d.	—	—
16	Plane Body ...	8/3	8/3	8/3	10/-	10/-	10/-	13/9	19/6	23/9	13/9	13/9
46	Frog Adjusting Screw	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.

Mohawk-Shelburne Planes (Made in U.S.A.)

Block Plane, No. 700 M-S

Body grey iron casting, milled and polished, with inside black enamelled. Plane iron of hardened steel. **Hardwood Handle** with black lacquer finish. Nickel-plated clamp screws.

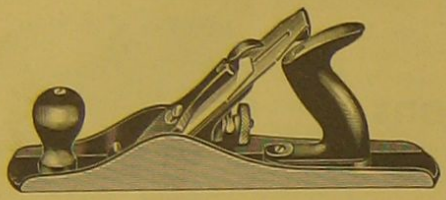
No. 700, Length 7 ins., Cutter 1⅝ ins. Weight 1⅜ lbs. **Price ... 3/3 each**



Smoothing Planes, No. 900 M-S

Bottom and frog grey iron castings, milled and polished. Black enamelled. **Good quality plane iron of steel hardened and tempered.** Lever side and screw end adjustment of cutter. Clamp lever handle red enamel, hardwood handle and knobs, black lacquer finish.

No. 900. Length 9 ins. Cutter 2 ins., Weight 3⅝ lbs. **Price ... 9/9 each**

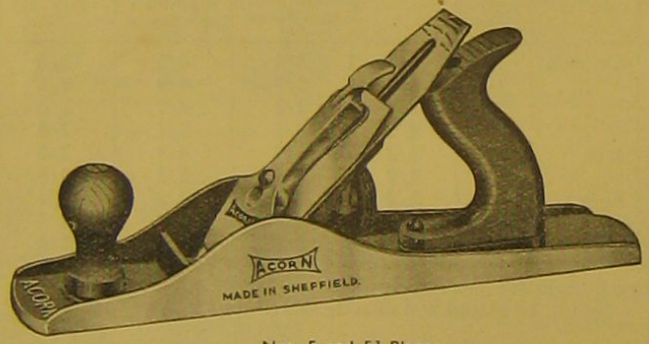


Jack Planes, No. 814 M-S

Similar in detail and finish to the No. 900M-S above, but is a longer and heavier plane.

No. 814. Length 14 ins. Cutter 2 ins. Weight 4¼ lbs. **Price ... 11/- each**

"Acorn" Planes (British Made)



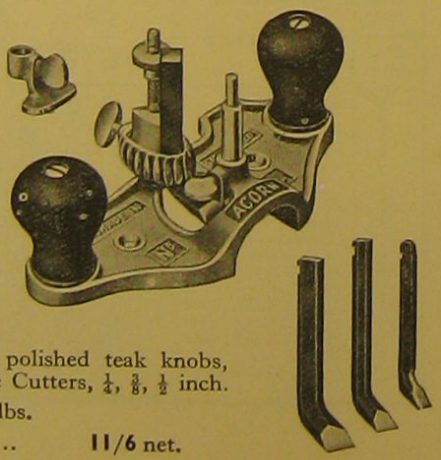
Nos 5 and 5½ Planes

These are well finished tools with Vanadium Alloy Steel for the iron. This material retains its cutting edge to a remarkable degree.

No.	Style	Weight Lbs.	Length Ins.	Width of Iron Ins.	Price	Spare Irons	
						Double	Single
3	Smooth	3⅛	8	1¾	9/3	3/-	2/-
4	,,	4⅝	9	2	10/-	3/3	2/3
4½	,,	4⅝	10	2⅜	12/3	3/9	2/9
5	Jack	4⅝	14	2	12/3	3/3	2/3
5½	,,	6⅝	15	2¼	15/-	3/9	2/9

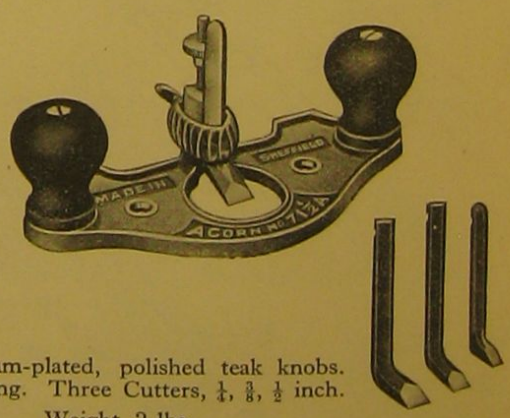
"Acorn" Routers (British Made)

No. 71 A
Open Throat



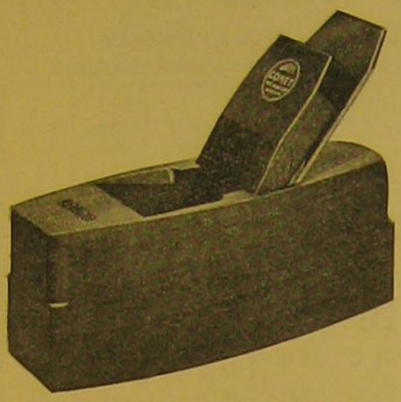
Cadmium-plated, polished teak knobs, 7½ ins. long. Three Cutters, ¼, ⅜, ½ inch.
Weight, 2 lbs.
Price ... ... 11/6 net.

No. 71½ A
Closed Throat



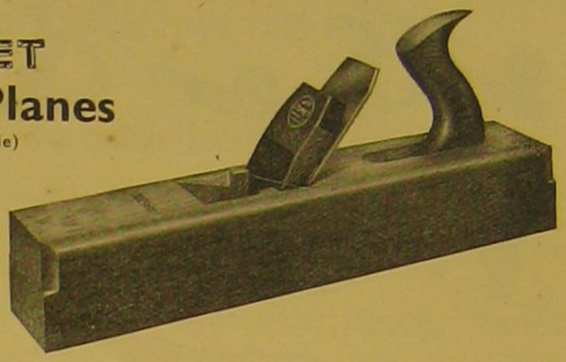
Cadmium-plated, polished teak knobs. 7½ ins. long. Three Cutters, ¼, ⅜, ½ inch.
Weight, 2 lbs.
Price ... ... 10/6 net.

WOOD PLANES AND PLANE HANDLES



COMET Wood Planes

(British Made)



Smoothing Planes

Seasoned English Steamed Red Beech, Oiled.

Warranted Sheffield Steel Double Irons, with Brass Nuts.

Size, Iron	2	2⅛	2¼ ins.
Price ...	**4/9**	**5/–**	**5/3 each**

Try Planes

(Closed handle)

Seasoned English Steamed Red Beech, Oiled.

Warranted Sheffield Steel Double Irons, with Brass Nuts.

Size, Iron, 2⅜ ins.; Length of Plane, 22 ins. **Price** ... **12/3 each**

Jack Planes

(Standard length)

Seasoned English Steamed Red Beech, Oiled.

Warranted Sheffield Steel Double Irons with Brass Nuts.

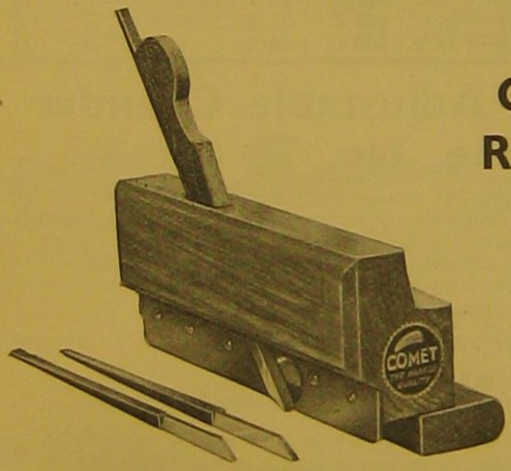
Size, Iron ...	2	2⅛	2¼ ins.
Price ...	**6/9**	**7/–**	**7/6 each**

COMET Sheffield Made Plane Irons for Wood Planes

Solid Cast Steel. Fully Warranted

Size of Iron	1¾	1⅞	2	2⅛	2¼	2½	ins.
Double Irons with Brass Nut	1/11	1/11	2/-	2/2	2/4	2/10	each
Single Cut Irons	1/4	1/4	1/5	1/5	1/6	1/11	,,
Top Irons (Bright Steel) with Screw ...	8d.	8d.	9d.	9d.	10d.	11d.	,,

COMET Grooving and Rabbet Planes



Grooving Planes

Seasoned English Steamed Red Beech, Oiled.
For Panelling, etc. The movable fence can be adjusted to suit various widths.
Price, with 3 Irons, ⅛, 3/16, ¼ inches. **6/6 each**

Skew Rabbet Planes

Seasoned English Steamed Red Beech, Oiled.

Size, Iron	1	1¼	1½ ins.
Price	**3/6**	**3/6**	**3/6 each**

Plane Handles (British Made)

Best English Steamed Beech, 1⅛ inch thick

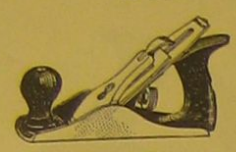
Jack Plane Handles, No. 72

Price, 8/8 per dozen.

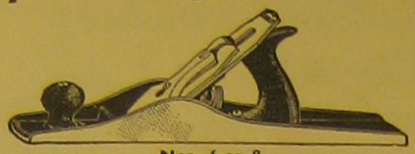
Try Plane Handles, No. 73

Price, 11/3 per dozen.

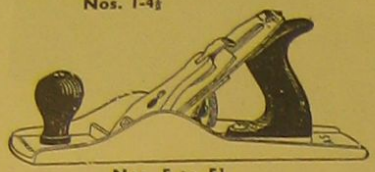
Stanley "Bailey" Adjustable Iron Planes (Made in U.S.A.)



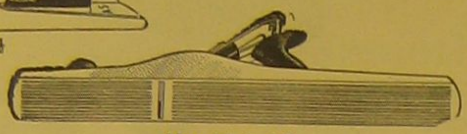
Nos. 1-4½



Nos. 6 to 8



Nos. 5 to 5½

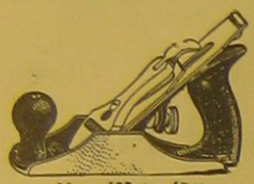


Nos 6C to 8C

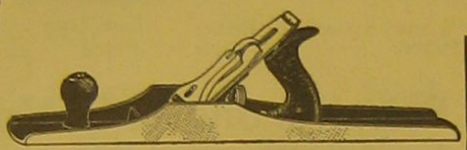
Nos. 1 to 8 with Smooth Bottoms
Nos. 3 C to 8 C with Corrugated Bottoms

Smooth Bottom		Corrugated Bottom		Style of Plane	Length Ins.	Cutter Ins.
No.	Price Each	No.	Price Each			
1	12/3	—	—	Smooth	5½	1¼
2	12/6	2 C	13/6	,,	7	1⅝
3	13/-	3 C	14/-	,,	8	1¾
4	13/6	4 C	14/6	,,	9	2
4½	16/-	4½ C	17/-	,,	10	2⅜
5	16/6	5 C	17/6	Jack	14	2
5½	15/9	5½ C	16/9	"Junior" Jack	11½	1¾
5½	18/6	5½ C	20/-	Jack	15	2¼
6	21/-	6 C	22/6	Fore	18	2⅜
7	25/-	7 C	27/-	Jointer	22	2⅜
8	30/-	8 C	32/-	,,	24	2⅜

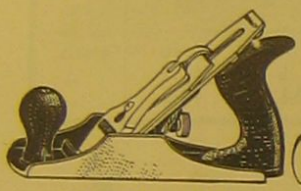
Stanley "Bed Rock" Planes (Made in U.S.A.)



Nos. 602 to 604½



Nos. 606 to 608

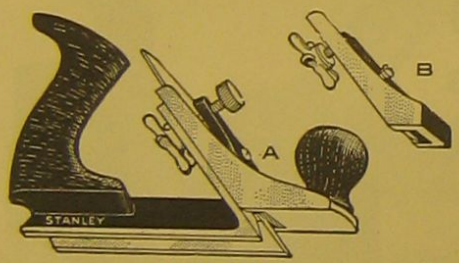


Nos. 605 to 605½

Nos. 606C to 608C

Nos. 602 to 608 with Smooth Bottoms
Nos. 603 C to 608 C with Corrugated Bottoms

Smooth Bottom		Corrugated Bottom		Style of Plane	Length Ins.	Cutter Ins.
No.	Price Each	No.	Price Each			
602	16/3	—	—	Smooth	7	1⅝
603	16/9	603 C	17/9	,,	8	1¾
604	18/3	—	—	,,	9	2
—	—	604½ C	22/3	,,	10	2⅜
605	21/3	—	—	Jack	14	2
605¼	18/3	—	—	"Junior" Jack	11½	1¾
605½	24/-	605½ C	25/3	Jack	15	2¼
—	—	606 C	29/-	Fore	18	2⅜
607	31/-	607 C	32/6	Jointer	22	2⅜
608	36/9	608 C	38/6	,,	24	2⅜



No. 72

Stanley Adjustable Chamfer Plane, No. 72 (Made in U.S.A.)

This Plane will do perfect chamfer or stop-chamfer work. It has a 90 degree V bottom which acts as a mitre guide. To this is attached an adjustable front A having a flat bottom which carries the Cutter; this front can be set for different sizes of chamfer. A bull-nose front B (furnished) can be substituted for A, permitting the plane to be worked close up into corners; japanned.

Length, 9 ins.; 1⅝-in. Cutter. **Price** ... ... **21/- each**

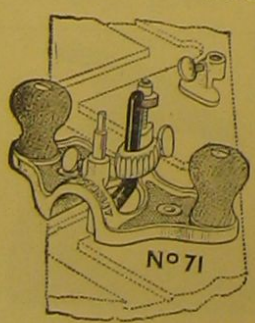
Stanley Router Plane, No. 271 (Made in U.S.A.)

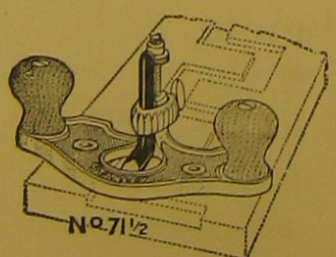
No. 271

Because of its small size it is useful on very narrow work for pattern and cabinet makers, also carpenters in letting in lock plates, etc. It is so constructed that either a closed throat for regular work or open throat for bull nose work can be had. By reversing cutter it can be used as a depth gauge. Nickel-plated, case-hardened thumb screws.

Length, 3 ins.; ¼-in. Cutter. **Price** ... **3/6 each**

Stanley Router Planes, Nos. 71 & 71½ (Made in U.S.A.)





These Planes are for surfacing the bottom of grooves or other depressions parallel with the general surface of the work. They are made in two styles, with closed and open throat. The latter has an attachment for regulating the thickness of the chip, and a second attachment for closing the throat for use on narrow surfaces. An extra wooden bottom of any size desired can be screwed on to bottom, enabling the user to router on large openings. A ¼ and ½ inch cutter are furnished with each plane; nickel-plated

No. 71, 7½ ins. long, Open Throat ... **15/- each**
,, **71½** 7½ ,, ,, Closed ,, ... **12/-** ,,

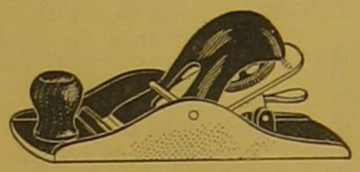
Stanley and Bailey Block Planes (Made in U.S.A.)

No. 101

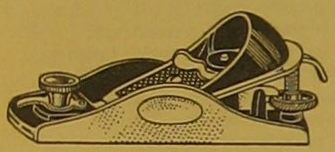
No. 100

Nos. 102 and 110

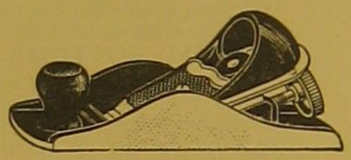
No. 103



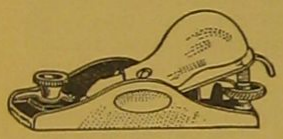
No. 120



Nos. 9½, 15, 16, and 17



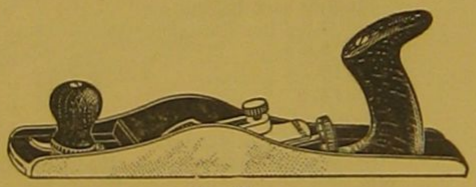
Nos. 203 and 220



Nos. 18 and 19

No. 65

Nos. 60 and 60½



No. 62

Stanley Non-Adjustable Block Planes

		Length.	Cutter.	Each.
No. 101.	... ...	3½ ins.	1 in.	2/–
,, 100.	Handled ...	3½ ,,	1 ,,	2/–
,, 102.	... ...	5½ ,,	1⅜ ,,	2/6
,, 110.	... ...	7½ ,,	1⅝ ,,	4/–

Stanley Adjustable Block Planes

		Length.	Cutter.	Each.
No. 203.	Screw Adjustment ...	5½ ins.	1⅜ ins.	6/6
,, 220.	,, ,, ...	7 ,,	1⅝ ,,	5/6
,, 103.	Lever ,, ...	5½ ,,	1⅜ ,,	3/9
,, 120.	,, ,, ...	7 ,,	1⅝ ,,	5/6

Bailey Adjustable Block Planes

		Length.	Cutter.	Each.
No. 9½.	Japanned	6 ins.	1⅝ ins.	8/–
,, 15.	,, ...	7 ,,	1⅝ ,,	10/–
,, 16.	Nickelled	6 ,,	1⅝ ,,	10/9
,, 17.	,, ...	7 ,,	1⅝ ,,	11/6
,,S18.	,, —Steel, practically indestructible (Knuckle Joint) ...	6 ,,	1⅝ ,,	14/–
,, 18.	Nickelled { Knuckle }	6 ,,	1⅝ ,,	11/6
,, 19.	,, { Joint. }	7 ,,	1⅝ ,,	12/6

Nos. 18 and 19 are distinctive in the method of fastening the cutter. The knuckle joint in the cap makes it also a lever, and placing the cap in position clamps the cutter securely to its seat.

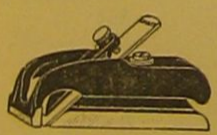
Stanley Low-Angle Block Planes

		Length.	Cutter.	Each.
No. 65.	Nickelled	7 ins.	1⅝ ins.	13/–
,, 60.	,, ...	6 ,,	1⅜ ,,	11/–
,, 60½.	Japanned	6 ,,	1⅜ ,,	9/6
,, 65½.	,, ...	7 ,,	1⅝ ,,	10/9
,, 62.	,, ...	14 ,,	2 ,,	24/–

No. 62 is especially adapted for use in cutting across the grain on heavy work, where more power is required than can be obtained by the use of the ordinary Block Plane. It is fitted with a rosewood handle and knob, and is designed to be operated with both hands.

Stanley Special Block Planes

Bull Nose Rabbet Plane No. 75

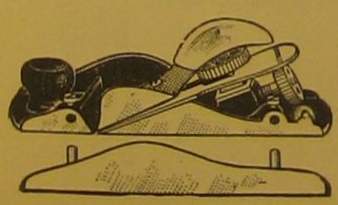


No. 75

Japanned ; Length, 4 ins.; Cutter, 1 1/16 in.

Price ... ... 2/6 each

Rabbet and Block Plane, No. 140



No. 140

A detachable side will easily change it from a block plane to a rabbet plane, and *vice versa*. **The cutter is adjustable endwise**, and set on a skew.

Nickelled; Length, 7 ins.; Cutter, 1⅝ ins.

Price ... 10/9 each

Double-end Block Plane, No. 130

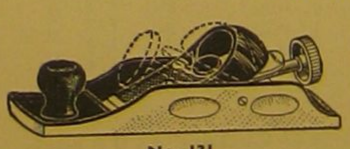
No. 130

Two slots and two cutter seats. The centre seat and slot to be used for ordinary block plane work, the other slot and seat for use as a bull nose plane.

Japanned; Length, 8 ins.; Cutter, 1⅝ ins.

Price ... 6/– each

Adjustable Double-end Block Plane, No. 131



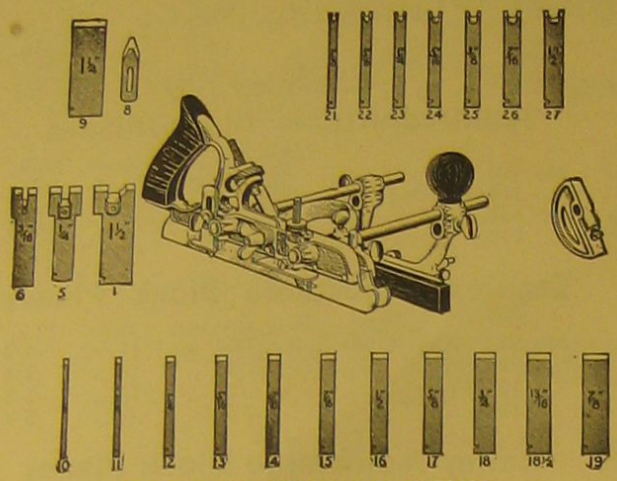
No. 131

A combination block and bull nose plane. It has two slots and a movable cutter seat, centre cutter seat, and slot for ordinary block plane, reverse end for bull nose plane.

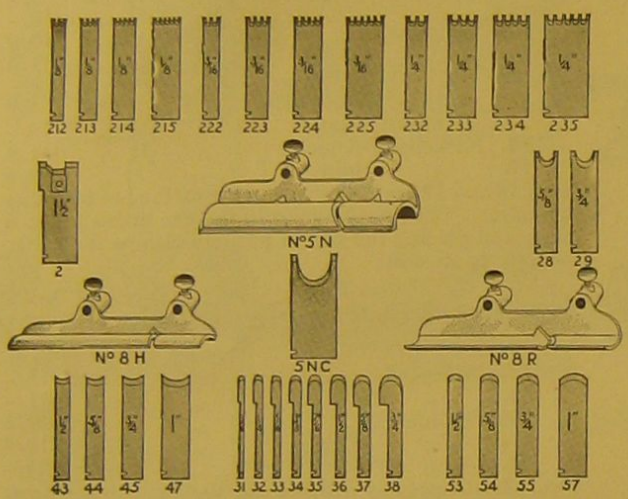
Japanned; Length, 8 ins.; Cutter, 1⅝ ins.

Price ... 11/3 each

Stanley No. 45 Plane (Beading, Rabbet and Slitting.) (Made in U.S.A.)



No. 45 PLAIN AND REGULAR CUTTERS



SPECIAL CUTTERS AND BOTTOMS FOR No. 45 PLANE

Seven Tools in One in compact and practical form. 1. Beading and Centre Beading Plane. 2. Plow. 3. Dado. 4. Rabbet and Filletster. 5. Match Plane. 6. Sash Plane. 7. Slitting Plane.

The Plane has two principal parts, a main stock and a sliding section. The main stock carries the handle, cutter adjustment, a slitting tool, depth gauge, and forms a bearing for one edge of the cutter. The sliding section slides on two arms secured in the stock and has a bearing for the other edge, allowing cutters of different widths to be used.

A fence also slides on these arms for use when working as a plow, beader or filletster, to gauge the distance from the cutter to the edge of the board, and to keep the cutter at right angles to same.

When used as a Filletster, the fence slides under the bottom of the Plane and determines the width of cutter exposed to the work.

The Plane is fitted with spurs for use across the grain, &c., and can be used either right or left hand. The handle, knob and fence are made of selected rosewood.

For beading at a distance from the edge of a board, attach cam rest (see cut at right of Plane) to the front arm between the sliding section and fence to prevent the fence sagging. In certain work attach same to the rear arm to prevent the Plane from rocking. The Plane together with its 23 cutters is packed in a neat box.

SPECIAL BOTTOMS—In order to work hollows and rounds, or a nosing cutter in the No. 45 Plane, substitute for the sliding section specially formed bottoms which are called Hollows, Rounds or Nosing Tools.

A hollow and its cutters will form a **round** on the moulding being worked. A round and its cutters will form a **hollow.** A nosing tool and its cutters will form what might be called an exaggerated round. It is very largely used for shaping the edges of stair treads. Hollows and rounds are made in four sizes and are usually sold in sets, a set comprising one hollow, one round and two cutters. The price of a nosing tool includes one cutter. Extra Nosing Tool Cutters (5 N C) **2/– each.**

		Per pair
Hollow and Round—		
No. 6. ½-ins. Cutters.	Work ¾-in. Circle ...	10/–
,, **8.** ⅝ ,, ,,	,, 1 ,, ,, ...	10/–
,, **10.** ¾ ,, ,,	,, 1¼ ,, ,, ...	11/–
,, **12.** 1 ,, ,,	,, 1½ ,, ,, ...	11/–
Nosing Tool—		Each
No. 5. 1 11/16-in. Cutters.	Work 1¼-in. Circle ...	8/–

Extra Cutters for Hollows and Rounds

No.		each	No.		each
43.	½-in. hollow ...	1/9	**53.**	½-in. round ...	1/9
44.	⅝ ,, ,, ...	1/9	**54.**	⅝ ,, ,, ...	1/9
45.	¾ ,, ,, ...	1/9	**55.**	¾ ,, ,, ...	1/9
47.	1 ,, ,, ...	1/9	**57.**	1 ,, ,, ...	1/9

CUTTERS SUPPLIED WITH PLANE

The price is given in case duplicates should be required.

No. 1.	1½ in.; style, Sash Tool	4/3	each
,, **5.**	¼ ,, ,, Match Tool	4/3	,,
,, **6.**	3/16 ,, ,, ,, ,, ...	4/3	,,
,, **8.**	,, Slitting Tool	2/6	,,
,, **9.**	1¼ ,, ,, Filletster	2/–	,,
,, **10.**	⅛ ,, ,, Plow and Dado Tool ...	1/3	,,
,, **11.**	3/16 ,, ,, ,, ,, ,, ,, ...	1/3	,,
,, **12.**	¼ ,, ,, ,, ,, ,, ,, ...	1/3	,,
,, **13.**	5/16 ,, ,, ,, ,, ,, ,, ...	1/3	,,
,, **14.**	⅜ ,, ,, ,, ,, ,, ,, ...	1/9	,,
,, **15.**	7/16 ,, ,, ,, ,, ,, ,, ...	1/9	,,
,, **16.**	½ ,, ,, ,, ,, ,, ,, ...	1/9	,,
,, **17.**	5/8 ,, ,, ,, ,, ,, ,, ...	1/9	,,
,, **18.**	¾ ,, ,, ,, ,, ,, ,, ...	1/9	,,
,, **18½.**	13/16 ,, ,, ,, ,, ,, ,, ...	2/–	,,
,, **19.**	⅞ ,, ,, ,, ,, ,, ,, ...	2/–	,,
,, **21.**	⅛ ,, ,, Beading Tool	1/3	,,
,, **22.**	3/16 ,, ,, ,, ,, ...	1/3	,,
,, **23.**	¼ ,, ,, ,, ,, ...	1/3	,,
,, **24.**	5/16 ,, ,, ,, ,, ...	1/9	,,
,, **25.**	⅜ ,, ,, ,, ,, ...	1/9	,,
,, **26.**	7/16 ,, ,, ,, ,, ...	2/–	,,
,, **27.**	½ ,, ,, ,, ,, ...	2/–	,,

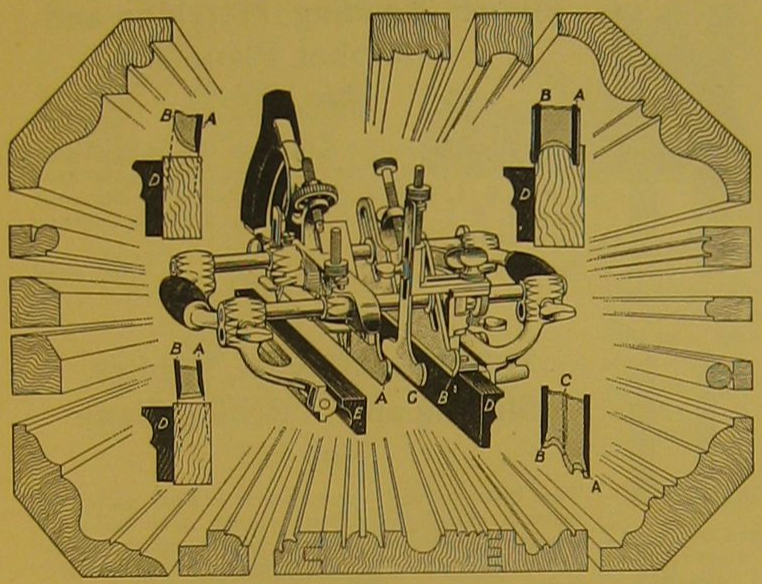
Price, No. 45, including 23 Cutters £3 0 0 each

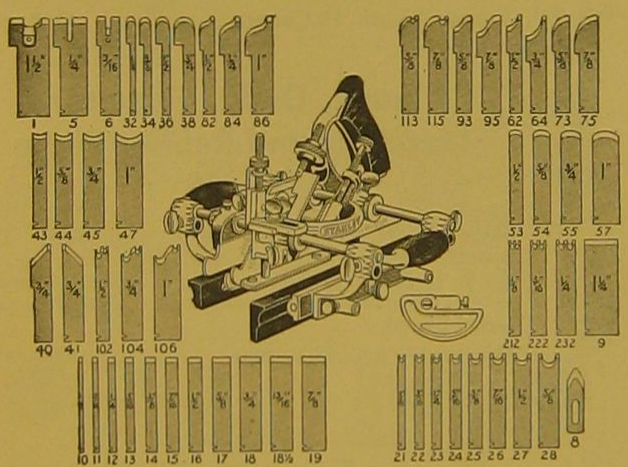
SPECIAL CUTTERS

No. 2.	1⅛ in.; style, Sash Tool	4/3	each
,, **28.**	⅛ ,, ,, Beading Tool ...	2/6	,,
,, **29.**	¾ ,, ,, ,, ,, ...	2/6	,,
,, **31.**	3/16 ,, ,, Fluting Tool ...	2/6	,,
,, **32.**	¼ ,, ,, ,, ,, ...	2/6	,,
,, **33.**	5/16 ,, ,, ,, ,, ...	2/6	,,
,, **34.**	⅜ ,, ,, ,, ,, ...	2/6	,,
,, **35.**	7/16 ,, ,, ,, ,, ...	2/6	,,
,, **36.**	½ ,, ,, ,, ,, ...	2/6	,,
,, **37.**	⅝ ,, ,, ,, ,, ...	2/6	,,
,, **38.**	¾ ,, ,, ,, ,, ...	2/6	,,
,, **212.**	⅛ ,, ,, Reeding Tool, 2 Beads	1/9	,,
,, **213.**	⅛ ,, ,, ,, ,, 3 ,,	2/6	,,
,, **214.**	⅛ ,, ,, ,, ,, 4 ,,	3/3	,,
,, **215.**	⅛ ,, ,, ,, ,, 5 ,,	4/3	,,
,, **222.**	3/16 ,, ,, ,, ,, 2 ,,	1/9	,,
,, **223.**	3/16 ,, ,, ,, ,, 3 ,,	2/6	,,
,, **224.**	3/16 ,, ,, ,, ,, 4 ,,	3/3	,,
,, **225.**	3/16 ,, ,, ,, ,, 5 ,,	4/3	,,
,, **232.**	¼ ,, ,, ,, ,, 2 ,,	1/9	,,
,, **233.**	¼ ,, ,, ,, ,, 3 ,,	2/6	,,
,, **234.**	¼ ,, ,, ,, ,, 4 ,,	3/3	,,
,, **235.**	¼ ,, ,, ,, ,, 5 ,,	4/3	,,

COMBINATION PLANE

Stanley No. 55 Plane (Made in U.S.A.)





This Tool, in addition to being a Beading and Centre Beading Plane, a Plow, Dado Rabbet, Fillet-ster, and Match Plane, a Sash Plane and a Slitting Plane, is also a superior Moulding Plane, and will accommodate cutters of almost any shape and size. In fact, it is "A PLANING MILL WITHIN ITSELF."

The samples of work illustrated show some of the mouldings that can be made with cutters regularly furnished with each Plane.

It has: **A Main Stock "A,"** which carries the cutter adjustment, a handle, a depth gauge, a slitting gauge, and has a steel bottom forming a bearing for one edge of the cutter.

A Sliding Section "B" with a steel bottom gives bearing for the other edge of the cutter and slides on arms secured in the main stock. This bottom can be raised or lowered, so that, in addition to allowing the use of cutters of different widths, cutters can be used having one edge higher or lower than the edge supported in the main stock.

An extra support or stop is necessary for cutters which first enter the wood at a point between the outside edges, and is a benefit for such cutters which, if the Plane were accidentally tilted, would tend to gouge the work.

The Auxiliary Centre Bottom "C" which can be adjusted for width or depth, fulfils this requirement.

Fence "D" has a lateral adjustment, by means of a screw, for extra fine work. The Fences can be used on either side of the Plane, and the rose-wood guides can be tilted to any desired angle up to forty-five degrees, by loosening the screws on the face. **Fence "E"** can be reversed for centre beading wide boards.

The Plane is fitted with spurs, also a special cam rest, to be located on the front arm when working at a distance from the edge of the board, to keep the Fence from sagging, or on the rear arm on certain work, to prevent the possibility of the Plane rocking.

The four small cuts in the corners show how the bottoms should be set for different forms of cutters, and the great importance of having the Fences adjusted so that the cutters will not run.

Special Cutters can be furnished when desired. Particulars and Prices on application.

CUTTERS SUPPLIED WITH PLANE

The following cutters are furnished with each Plane. The price is given in case duplicates should be required.

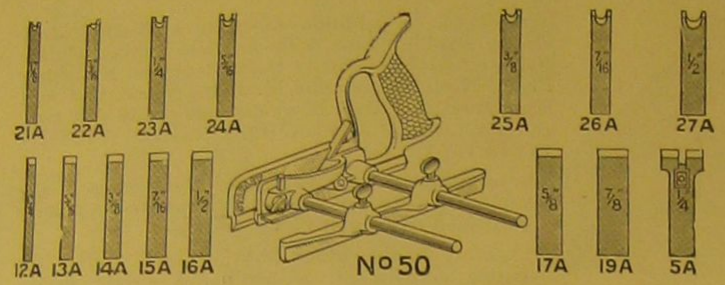
	Size.	Style.	Each.
No. 1.—	1¾ in.	Sash Tool... ...	4/3
,, **5.—**	¼ ,,	Match Tool ...	4/3
,, **6.—**	5/16 ,,	,, ,, ...	4/3
,, **8.—**		Slitting ,, ...	2/6
,, **9.—**	1¼ ,,	Filletster	2/–
,, **10.—**	⅛ ,,	Plow & Dado Tool	1/3
,, **11.—**	3/16 ,,	,, ,,	1/3
,, **12.—**	¼ ,,	,, ,,	1/3
,, **13.—**	5/16 ,,	,, ,,	1/3
,, **14.—**	⅜ ,,	,, ,,	1/9
,, **15.—**	7/16 ,,	,, ,,	1/9
,, **16.—**	½ ,,	,, ,,	1/9
,, **17.—**	5/8 ,,	,, ,,	1/9
,, **18.—**	¾ ,,	,, ,,	1/9
,, **18½.—**	13/16 ,,	,, ,,	2/–
,, **19.—**	⅞ ,,	,, ,,	2/–
,, **21.—**	⅛ ,,	Beading Tool ...	1/3
,, **22.—**	3/16 ,,	,, ,, ...	1/3
,, **23.—**	¼ ,,	,, ,, ...	1/3

	Size.	Style.	Each.
No.24.—	1/16 in.	Beading Tool ...	1/9
,, **25.—**	3/16 ,,	,, ,, ...	1/9
,, **26.—**	7/16 ,,	,, ,, ...	2/–
,, **27.—**	½ ,,	,, ,, ...	2/–
,, **28.—**	⅝ ,,	,, ,, ...	2/6
,, **32.—**	¼ ,,	Fluting Tool ...	2/6
,, **34.—**	5/16 ,,	,, ,, ...	2/6
,, **36.—**	⅜ ,,	,, ,, ...	2/6
,, **38.—**	7/16 ,,	,, ,, ...	2/6
,, **40.—**	½ ,,	R.H. Chamfer ...	2/6
,, **41.—**	¾ ,,	L.H. ,, ...	2/6
,, **43.—**	⅛ ,,	Hollow	1/9
,, **44.—**	3/16 ,,	,, ...	1/9
,, **45.—**	¼ ,,	,, ...	1/9
,, **47.—1**	,,	,, ...	1/9
,, **53.—**	1/16 ,,	Round	1/9
,, **54.—**	3/16 ,,	,, ...	1/9
,, **55.—**	¼ ,,	,, ...	1/9
,, **57.—1**	,,	,, ...	1/9

	Size.	Style.	Each.
No.62.—	½ in.	Quarter Hollow ...	3/9
,, **64.—**	¾ ,,	,, ,, ...	4/3
,, **73.—**	5/8 ,,	,, Round ...	3/9
,, **75.—**	⅞ ,,	,, ,, ...	4/3
,, **82.—**	½ ,,	Reverse Ogee ...	3/9
,, **84.—**	¾ ,,	,, ,, ...	4/3
,, **86.—1**	,,	,, ,, ...	4/3
,, **93.—**	5/8 ,,	Roman ,, ...	3/9
,, **95.—**	⅞ ,,	,, ,, ...	4/3
,, **102.—**	½ ,,	Grecian ,, ...	3/9
,, **104.—**	¾ ,,	,, ,, ...	4/3
,, **106.—1**	,,	,, ,, ...	4/3
,, **113.—**	5/8 ,,	½ Round with Bead	3/9
,, **115.—**	⅞ ,,	¼ ,, ,,	4/3
,, **212.—**	⅛ ,,	Beading Tool, 2 Bead	1/9
,, **222.—**	3/16 ,,	,, ,,	1/9
,, **232.—**	¼ ,,	,, ,,	1/9

Price, including 55 Cutters .. .. £6 15 0 each

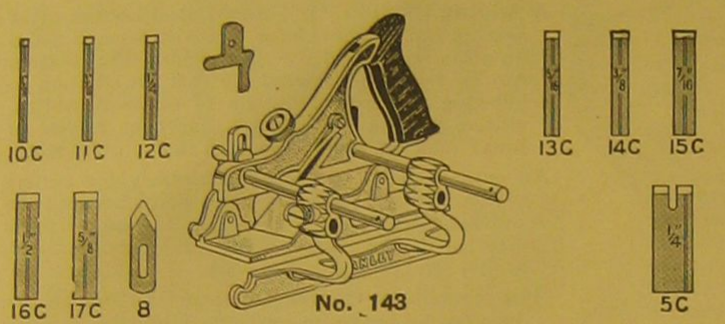
Stanley Planes (Made In U.S.A.)



Plough, Beading, Matching and Rabbet Plane No. 50

A very handy tool for light work. Fence has 5-inch adjustment. The cutters comprise 7 plough and dado bits, $\frac{1}{8}$, $\frac{5}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{7}{8}$ inch; 7 beading tools $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{1}{2}$-inch; and a $\frac{1}{4}$-inch tonguing tool; nickel-plated.

Length, 9¼ ins., 17 Cutters ... ... **30/– each**

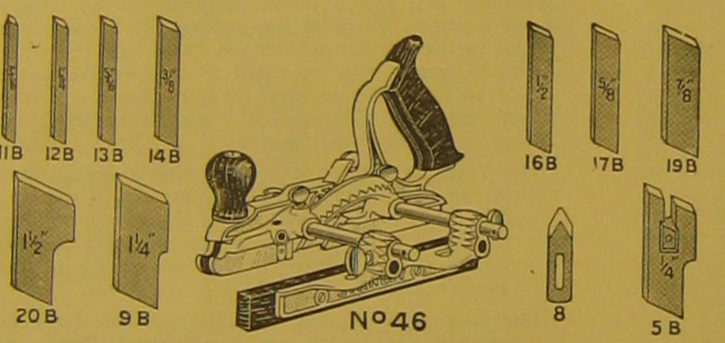


Bull Nose Plough, Rabbet, Slitting and Matching Plane No. 143

This Plane has two interchangeable front parts that make it either an ordinary plough or a bull nose plough. With the bull nose attachment the cutter will easily work up to and into a $\frac{1}{2}$-inch hole or any larger size, as in sash fitting, stair work, etc.

The cutters comprise 8 plough bits, $\frac{1}{8}$, $\frac{5}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ and $\frac{5}{8}$ inch; a $\frac{1}{4}$-inch tonguing tool and a slitting cutter; nickel-plated.

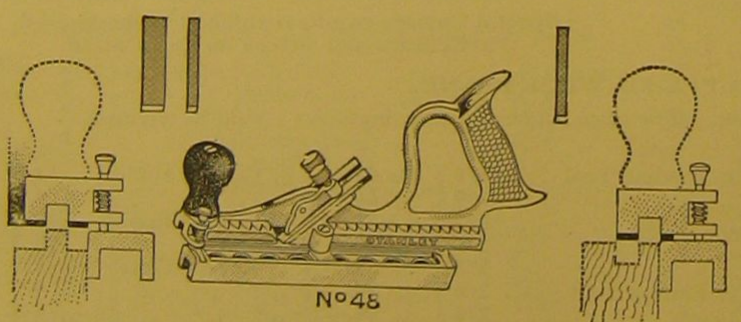
Length 9¼ ins., 10 Cutters ... ... **32/9 each**



Plough, Dado, Filletster, Matching and Rabbet Plane No. 46

Skew cutters are the feature of this Plane. The cutters comprise 8 plough and dado bits, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{13}{16}$, $\frac{7}{8}$ and 1¼ inch; a 1½-inch filletster cutter; a $\frac{1}{4}$-inch tonguing tool, and a slitting cutter; nickel-plated.

Length, 10½ ins., 12 Cutters ... ... **50/– each**

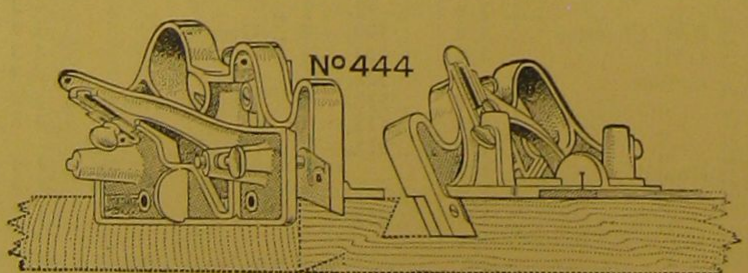


Swing Fence Match Planes Nos. 48 and 49

With two plough cutters of same width and one extra wide cutter. For cutting tongues and grooves at one setting by simply reversing fence.

No. 48, Cuts $\frac{5}{16}$ Groove, on boards $\frac{3}{4}$ in. to 1¼ ins. Centres on $\frac{7}{8}$ in. ... ... **22/9 each**

No. 49, Cuts $\frac{3}{16}$ Groove, on boards $\frac{1}{2}$ in. to $\frac{3}{4}$ in. Centres on $\frac{1}{2}$ in. ... ... **22/9** ,,

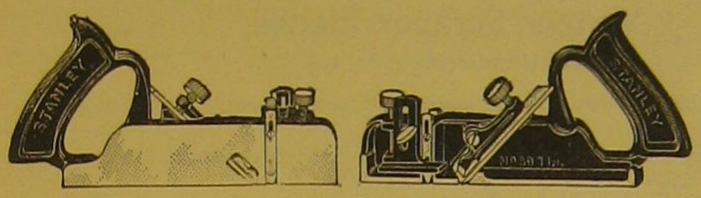


Dovetail Tongue and Groove Plane No. 444

This novel tool forms a dovetail tongue and groove with one hand tool. It will cut any size grooves and tongues to fit with sides at flare of 20 degrees where the width of neck is more than $\frac{1}{4}$ inch and depth of groove not more than $\frac{1}{4}$ inch. Tongue and groove can be made with parallel or tapering sides; nickel-plated.

9 ins. long. ... ... **46/9 each**

Stanley Planes (Made in U.S.A.)

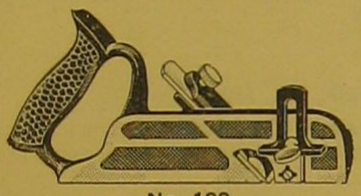


No. 39

Handled Iron Dado Planes No. 39

The Plane is made in eight sizes, from ¼ to 1 inch in width. In ordering, always give the number (39) and width of cutter desired. Length, 8 inches

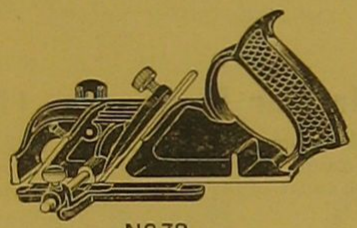
Sizes	¼	⅜	½	⅝	¾	13/16	⅞	1	in.
Prices	**13/3**	**14/–**	**14/9**	**15/6**	**16/6**	**17/–**	**17/–**	**17/9**	**ea.**


No. 190

Handled Iron Rabbet Planes, Nos. 190-1-2

These Planes can be used equally as well with right or left hand. Made in two styles, one with spur for working across the grain and the other without a spur. Both styles are fitted with a detachable depth gauge. Japan finish.

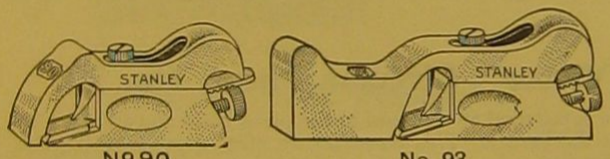
No. 190, 8 ins. long, 1½-in. Cutter, with Spur ... ... **9/– each**
,, **191**, 8 ,, ,, 1¼ ,, ,, ,, ,, ... **8/6** ,,
,, **192**, 8 ,, ,, 1 ,, ,, ,, ,, ... **8/–** ,,


No 78

Duplex Rabbet Planes, Nos. 78 and A78

This Plane has two seats for the cutter, one for regular work and the other where a bull nose is required. It has a spur and a removable depth gauge, The adjustable fence can be used on either side and slides under the bottom, regulating the width of the cut. To work same as a rabbet plane, remove fence and arms. Japanned.

No. 78, 8½ ins. long, 1½-in. Cutter ... ... **11/3 each**
No. A78, Aluminium, 8½ ins. long, 1½-in. Cutter ... ... **18/–** ,,

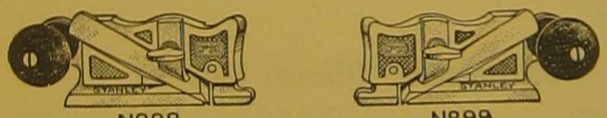


No 90 No. 93

Cabinet Makers' Rabbet Planes Nos 90-94

For fine cabinet or other accurate work. The Planes will lie perfectly flat on either side, and can be worked either right or left hand. Adjustable throats and cutters.
Plane No. 90 is bull-nosed; nickel-plated.

No. 90. 4 ins. long, 1-in. Cutter ... **10/6 each**
,, **92**. 5½ ,, ¾ ,, ... **15/6** ,,
,, **93**. 6½ ,, 1 ,, ... **17/6** ,,
,, **94**. 7½ ,, 1¼ ,, ... **20/6** ,,

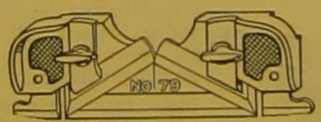


No 98 No 99

Side Rabbet Planes, Nos. 98 and 99

For side-rabbeting and trimming dados, mouldings, and grooves of all sorts; nickel-plated.

No. 98. 4 ins. long, ½-in, Cutter, Right Hand **8/9 each**
,, **99**. 4 ,, ,, ½ ,, Left ,, **8/9** ,,

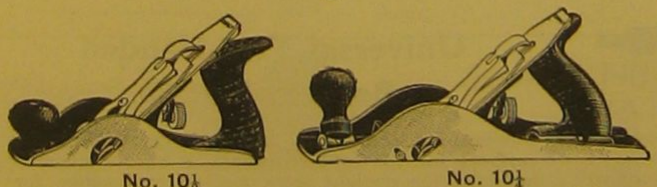


Side Rabbet Plane, No. 79

A convenient plane for side rabbeting, in trimming dados, mouldings, and grooves of all sorts. A reversible nose piece allows it to be worked up into close corners when required. Nickel-plated.

Length, 5½ ins.; ½-in. Cutter ... **8/9 each**

Carriage Makers' Rabbet Planes, Nos. 10, 10¼, 10½


No. 10½ No. 10¼

	Length.	Cutter.	Each
No. 10½	9¼ ins.	2⅛ ins.	**21/6**
,, **10**	13 ,,	2⅛ ,,	**23/–**
,, **10¼**	13 ,,	2⅛ ,,	**30/–**

No. 10¼ differs from the other sizes in having tilting handle and knob, and spurs on both sides for working across grain.

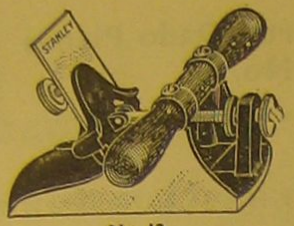
No 95

Edge Trimming Plane, No. 95

It has a right-angle rest or guide from the cutter edge, and the cutter works on a skew giving an easy shaving cut. Wood blocks of various bevels may be attached, enabling the user to make a slanting cut; japanned.

Length, 6 ins., 1 1/16 in. Cutter ... **8/3 each**

Stanley Planes and Beaders (Made in U.S.A.)



No. 12

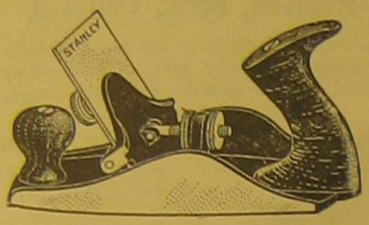
Veneer Scraper Planes

Double Handle, Nos. 12, 12½, 12½

Blades are adjustable endwise and for angle, and can be firmly locked in position desired.

No. 12½ is for very fine work and is specially fitted with detachable rosewood bottom.

No. 12.	Length, 6¼ ins.; Blade, 2⅜ ins.	... ...	**18/9 each**
,, **12¼.**	,, 6¼ ,, ,, 2 ,,	... ...	**17/9** ,,
,, **12½.**	,, 6¼ ,, ,, 2⅜ ,,	... ...	**25/9** ,,
Extra Blades for **Nos. 12, 12¼, 12½**		... ...	**2/3** ,,
,, Rosewood Bottoms for **No. 12½**		... ...	**2/3** ,,

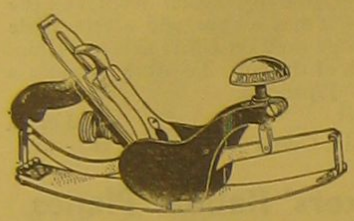


No. 112

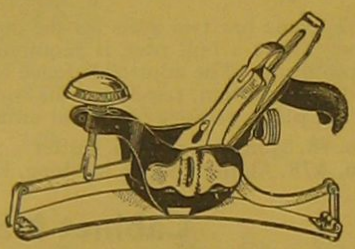
Single Handle, No. 112

The blades are adjustable endwise and for angle. Can also be used as a toothing plane in scraping off old paint or glue, and in roughing up the surface of wood preparatory to veneering same: japanned.

No. 112.	Length, 9 ins.; Blade, 2⅜ ins.	... ... **18/9 each**
Extra Blades for **No. 112**		... ... **2/3** ,,



No. 113.—RIGHT SIDE

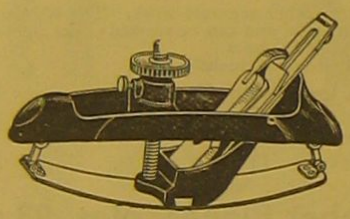


No. 113.—LEFT SIDE

Circular Plane, No. 113

A valuable feature is the graduated scale on the gears, by means of which the face can be accurately set to work an arc of the same circle both concave and convex.

		Length	Cutter	Each
No. 113.	Japanned ...	10 ins.	1¾ ins.	**27/–**



No. 20

"Victor" Circular Plane, No. 20

The face is fastened at each end to the plane body and adjusted by screw at the centre. This construction gives great strength and simplicity.

No. 20. Japanned; 10 ins.; Cutter, 1¾ ins.

Price ... ... 27/– each.

Scrub Planes, No. 40 and 40½

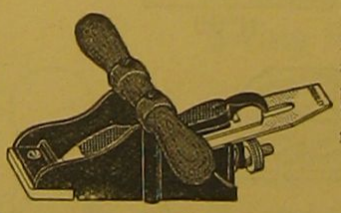
No. 40

Single iron, with cutting edge rounded. Particularly adapted for roughing down work before using a jack or other plane.

No. 40. Iron Stock, 9½ ins. long, 1¼-in. Cutter **9/– each**

No. 40½. Iron Stock, 10½ ins. long, 1½-in. Cutter **10/6 each**

Beltmakers' Plane, No. 11

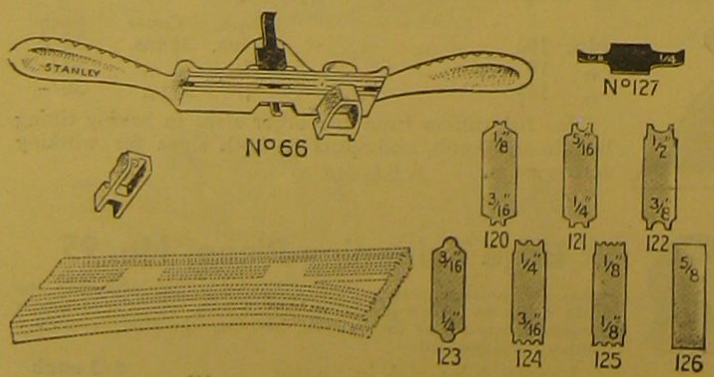


No. 11

This tool is used by belt-makers for chamfering down the laps of a belt before fastening them together. It is equally well adapted for repairing belts in all large manufacturing establishments.

No. 11. Beltmakers' Plane; Length, 5¾ ins., 2⅜-in. Cutter.

Price ... ... 18/9 each



Universal Two-Handed Beader, No. 66

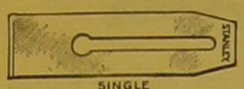
For beading, reeding, or fluting straight or irregular surfaces and for light routering. A square gauge is included for straight work and an oval gauge for curved work. Also eight cutters sharpened at both ends; 6 single beads, 2 fluting, 4 reeding tools, 2 routers ⅛ and ¼ inch, and ⅝-inch blank. Nickel-plated.

Length, 11½ ins., 8 Cutters	...	**8/– each**
Extra Cutters	... ...	**6d.** ,,

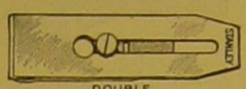
PLANE IRONS, etc.: FIBRE BOARD CUTTER

Parts for Stanley and Bailey Planes (Made in U.S.A.)

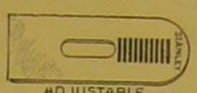
For "Bed Rock" and "Bailey" Iron and Wood Planes. The proper bevel for grinding the cutter is at an angle of about 25 degrees. This angle should be observed when regrinding or rehoning the cutter. The same plane iron fits all the planes opposite the sizes given below, but the cap irons in the iron and wood planes are not interchangeable. In ordering, always give number of plane for which iron is wanted.



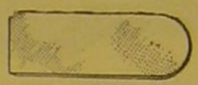
SINGLE



DOUBLE



ADJUSTABLE

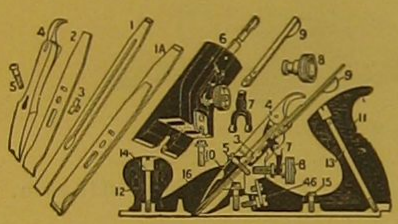

NON-ADJUSTABLE

Bench Plane Irons

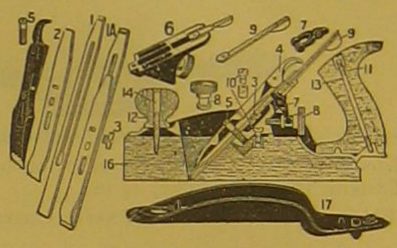
Planes No.			Price, each, Single	Double
1¾ in.	for	1	1/6	2/9
1⅞	,,	2, 602	1/9	3/3
1¾	,,	3, 3C, 20, 22, 113, 603, 603C, 5¼, 5¼C, 605¼, 605¼C	2/3	3/9
2	,,	4, 4C, 5, 5C, 9, 24, 26, 35, 604, 604C, 605, 605C	2/3	3/9
2	,,	10, 10¼, 10½	2/6	4/–
2⅛	,,	5½, 5½C, 27½, 605½, 605½C ...	2/9	4/3
2⅜	,,	4½, 4½C, 6, 6C, 7, 7C, 11, 28, 31, 36, 604½, 604½C, 606, 606C, 607, 607C	2/9	4/3
2⅝	,,	8, 8C, 32, 37, 608, 608C	2/9	4/6

Block Plane Irons

Planes No.			Price, each
1	in. for	100 9d. each 101	8d.
1⅜	,,	60, 60½, 61, 203	1/6
1⅜	,,	102, 103	1/–
1⅝	,,	9½, 15, 16, 17, 18, 19, 65, 65½, 120, 131, 220	1/6
1⅝	,,	110, 130	1/3
1¾	,,	140...	1/9
2	,,	62	3/–


"BAILEY" IRON PLANE

STANLEY BLOCK PLANE


"BAILEY" WOOD PLANE

"Bailey" Iron Planes

Lever Cap, No. 4	2/– each
Frog complete, No. 6	3/– ,,

"Bed Rock" Planes

Lever Cap, No. 4...	2/6 each
Frog complete, No. 6	4/3 ,,

Stanley Block Planes

Planes No.	100	102	101	103	110	120	130	131	140	203	220
Lever Cap, No. 4	–/6	–/9	–/9	–/9	–/9	–/9	1/3	–/9	–/9		
Frog complete, No. 6			—	1/3	—	1/3	—	1/3	–/9	–/9	/–9

"Bailey" and Stanley Block Planes

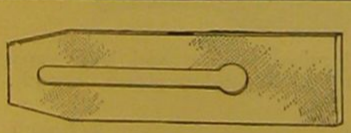
Planes No.	9½	9¾	15	15½	16	17	18	19	60	60½	61	62	63	65	65½
Lever Cap, No. 4	–/9		–/9		1/3		3/–		1/3		1/3		1/3	3/–	–/9
Frog complete, No. 6	—		—		—		—		–/9		–/9		–/9	–/9	–/9

"Bailey" Wood Planes

Lever Cap, No. 4	1/9 each
Frog complete No. 6	2/6 ,,

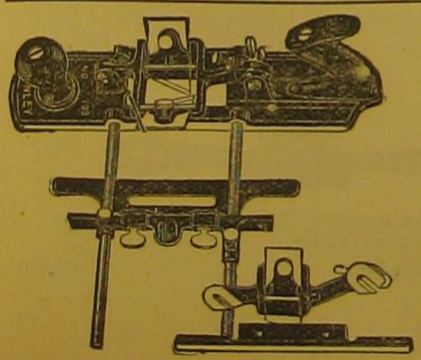
Carriage Makers, Circular and Scrub Planes

Planes No.	10½	10	10¼	11	113	20	40	40½	51
Lever Cap, No. 4	2/–		2/–	2/–	2/–	2/–	–/9	–/9	2/–
Frog complete, No. 6	3/–		3/–	3/–	3/–	3/–	—	—	3/–



COMET Sheffield Made
American Pattern Single Cut Irons for Iron Planes

Size	2	2¼	2⅜ inches.
Price	1/9	2/–	2/3 each



Stanley Fibre Board Cutter, No. 193 (Made in U.S.A.)

This is a combination tool for slitting, bevelling and grooving Essex and similar fibre composition boards.

By use of the various attachments and re-sharpening type cutters this tool, which is fitted with rosewood handle and knob, as used on Stanley Planes, **will cut quicker than a saw and leave smooth edges.**

The attachments supplied with No. 193 Tool are:—

No. 1A Groove and Bevel Cutter Holder. No. 2 Slitting Cutter Holder, No. 3 Slide. No. 4 Bevel Guide. No. 5 Groove Slide, and one each of the Re-sharpening Type Cutters (various shapes) Nos. 1, 2, 3, 4, 5 and 6.

Price, complete in box with Attachments ... ... £2 10 0 each

"Record" Spokeshaves (British Made)

With Tungsten Steel Cutters

With adjustable cutter, cap iron, and **raised handle.**
Length, 10 ins. Cutter, 2⅛ ins.

No. 051.	Flat Face	**2/9 each**
No. 051R.	Round Face	**2/9 ,,**
Extra Cutters		**10d. ,,**

With Adjustable Cutter, cap iron and **straight handle.**
Length 10 ins. Cutter 2⅛ ins.

No. 052	Flat Face	**2/9 each**
No. 052R.	Round Face	**2/9 ,,**
Extra Cutters		**10d. ,,**

No. 053. ADJUSTABLE MOUTH

Mouth can be opened or closed for coarse or fine work.
Length, 10 ins. Cutter, 2⅛ ins.
Price, 2/6 each. **Extra Cutters, 10d. each.**

No. 063. LIGHT DOUBLE IRON

Round Face, straight handle.
Length, 9 ins. Cutter, 1¾ ins.
Price, 1/6 each. **Extra Cutters, 8d. each.**

Double Iron. Adjustable by thumb screw. **Raised handle.** Length, 10 ins. Cutter, 2⅛ ins.

No. 051.	Flat Face	**2/– each**
No. 051R.	Round Face	**2/– ,,**
Extra Cutters		**10d. ,,**

Double Iron. Adjustable by thumb screw. **Straight handle.** Length 10 ins. Cutter 2⅛ ins.

No. 052	Flat Face	**2/3 each**
No. 052R.	Round Face	**2/3 ,,**
Extra Cutters		**10d. ,,**

No. 055. HOLLOW FACE

Length, 10 ins. Cutter, 2⅛ ins.
Price, 2/3 each. **Extra Cutters, 10d. each.**

No. 064. LIGHT DOUBLE IRON

Flat Face, straight handle.
Length, 9 ins. Cutter, 1¾ ins.
Price, 1/6 each. **Extra Cutters, 8d. each.**

"Record" All-Steel Spokeshaves

With Tungsten Steel Cutters

With steel raised handles and lever caps. Adjustable Tungsten Steel Cutter.
Length, 10 ins. Cutter, 2⅛ ins.

No. A 151.	Flat Face	**3/6 each**
No. A 151 R.	Round Face	**3/6 ,,**
Extra Cutters		**10d. ,,**

With steel straight handles. Light Double Iron.
Length, 9 ins. Cutter, 1¾ ins.

No. A 63.	**Round Face**	**2/– each**
Extra Cutters		**8d. ,,**

Double Iron with steel raised handles and lever caps. Cutter and cap iron adjustable by thumb screw. Length, 10 ins. Cutter, 2⅛ ins.

No. A 51.	Flat Face	**2/9 each**
No. A 51 R.	Round Face	**2/9 ,,**
Extra Cutters		**10d. ,,**

With steel straight handles. Light Double Iron.
Length, 9 ins. Cutter, 1¾ ins.

No. A 64.	**Flat Face**	**2/– each**
Extra Cutters		**8d. ,,**

SPOKESHAVES

Stanley Spokeshaves (Made in U.S.A.)

No 51

Double Iron, Raised Handle

No 52

Double Iron, Straight Handle

Double Iron, Improved

With cutter and cap iron. The thumb nut brings equal pressure on cutter edge, allowing adjustment without use of screw driver.

		Length	Cutter	Each
No. 51.	Raised Handle ...	10 ins.	2⅛ ins.	**2/–**
,, **52.**	Straight Handle	10 ,,	2⅛ ,,	**2/3**

Adjustable Cutter

No. 151

Cutter can be quickly adjusted both endways and sideways. Adjusting screws engage the slots near the end.

		Length	Cutter	Each
No. 151.	Raised Handle ...	10 ins.	2⅛ ins.	**2/9**
,, **152.**	Straight Handle ...	10 ,,	2⅛ ,,	**2/9**

Adjustable Mouth

No. 53

Adjustable Mouth, Raised Handle

By means of a thumb screw the mouth can be opened or closed for coarse or fine work.

		Length	Cutter	Each
No. 53.	Raised Handle ...	10 ins.	2⅛ ins.	**2/6**

Hollow Face

No 55

This spokeshave has cutter with hollow face for all kinds of round work.

		Length	Cutter	Each
No. 55.	Raised Handle... ...	10 ins.	2⅛ ins.	**2/3**

Two Cutter

No 60

Has two separate cutters and cutter seats, one hollow and one straight.

		Length	Cutter	Each
No. 60.	Straight Handle ...	11 ins.	1½ ins.	**3/3**

Double Iron (Light)

No 63

No 64

Double Iron, Convex Bottom. Double Iron, Straight Bottom.

Designed especially for light work. Thumb screw fastens cutter and cap iron. Straight handles.

		Length	Cutter	Each
No. 63.	Convex Bottom ...	9 ins.	1¾ ins.	**1/6**
,, **64.**	Straight ,, ...	9 ,,	1¾ ,,	**1/6**

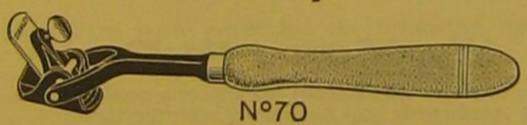
Adjustable Chamfer

No 65

Can be adjusted to work chamfers up to 1½ inches, the width of cutter.

		Length	Cutter	Each
No. 65.	Straight Handle ...	10½ ins.	1½ ins.	**3/3**

Stanley Box Scraper, No. 70 (Made in U.S.A.)

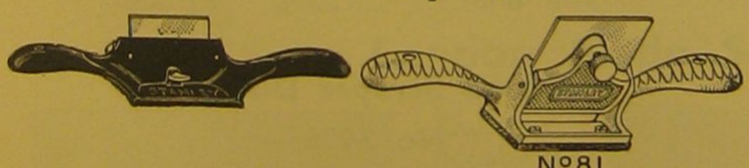


No 70

Malleable Iron Bottom

		Length	Cutter	Each
No. 70.	Japanned	13 ins.	2 ins.	**4/–**
	Extra Blades ...	**12/– per doz.**		

Stanley Cabinet Scrapers (Made in U.S.A.)



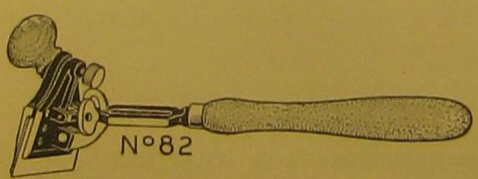
No 81

Handled Scrapers Nos. 80 and 81

Blade may be sprung to a slight curve by means of thumb screw. Raised handles.

		Length	Blade	Each
No. 80.	Japanned ...	11½ins.	2¾ ins.	**4/6**
,, **81.**	Nickelled ...	10 ,,	2¾ ,,	**12/6**

Extra Blades for Nos. 80 and 81 **15/– per doz.**



No 82

Adjustable Scraper, No. 82

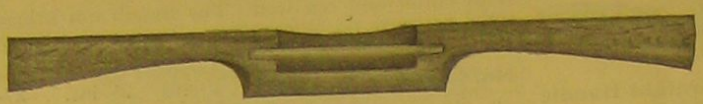
Has an adjustable single handle which can be tilted to give the blade any angle desired.

		Length	Blade	Each
No. 82.	Japanned	14½ ins.	3 ins.	**7/6**
	Extra Blades ...	**15/– per doz.**		

SPOKESHAVES AND SCRAPERS

COMET Spokeshaves (British Made)

First quality. Nicely shaped in boxwood or beechwood.



Size, iron	...	1¾	2	2¼	2½	3	ins.
Price, Beechwood		**1/7**	**1/8**	**1/9**	**1/10**	**2/–**	**each**
,, Boxwood		**2/4**	**2/6**	**2/8**	**2/9**	**3/–**	**,,**

"Record" Scrapers (British Made)

No. 080 Cabinet Scraper

The iron is reversible, has two scraping edges, and is adjustable by means of a thumb screw.
Length, 11½ ins. Cutter, 2¾ ins.

Price ... ... **4/6 each**
Extra Blades ... ... **1/3 ,,**

No. 070 Box Scraper

For removing stencils and marks from the surface of boxes, floors, etc.
The ash handle is hinged on the body, and the cutter and bottom are slightly curved for scraping irregular surfaces. Length, 13 ins. Cutter, 2 ins. Weight, 2 lbs.

Price, complete ... ... **4/– each**
Extra Cutters ... ... **1/– ,,**

Millers Falls-Goodell Pratt Scrapers (Made in U.S.A.)

Floor Scrapers, Nos. 34 and 35 With Four Keen Cutting Edges

Primarily made for putting a fine finish to woodwork, these Scrapers are equally efficient in removing paint, lacquer, varnish, dirt, grease, etc.
The blade, two edges of which are always exposed for use, is of carbon steel, tempered to hold a keen edge. When the other edges are required the blade is simply slid out of the handle, reversed, and replaced.

Resharpening is very simple. The handle is clamped in a vice and the edge nearest the operator dressed with a fine file. The tool should then be turned around in the vice and the second edge sharpened. The file cut should always be towards the scraping edge. Care should be used to maintain the original angle of the edge. It is not necessary to turn the edge with a steel as with other types of scrapers.

No. 34, with 2½ inch wide Blade. Weight 5 ozs. **Price, 2/1 each. Extra Blades, No. 346, 1/6 each.**
No. 35, ,, 1½ ,, ,, ,, ,, 2¾ ,, ,, **1/3** ,, ,, ,, **No. 356, 10d. ,,**

Wood Scraper No. 39

This new handle provides ample room for applying pressure with the left hand, and allows comfortable grip for pulling with the right.
Complete with four blades, two being in use, the others being reversible remain in the handle. Hardwood varnished handle. Length overall, 8¾ ins. Blades 2¾ ins. wide.

Price ... ... **2/1 each**

Wood Scraper Display No. 3900

This display, as illustrated, comprises the following eight Millers Falls Scrapers:—

One each, Nos. 39, 51, 34, 35, 41, 53, 55 and 296.

Price, Display Complete **16/3**

CABINET AND WALL SCRAPERS, ETC.

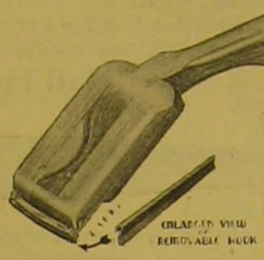
Skarsten Scrapers (British Made)

Skarsten Scrapers embody a new principle of design in which the **hook or blade is instantly removable and renewable.** They are ideal tools for removing paint varnish, enamel, lacquer, glue, etc., dry from wood and metal surfaces.
Hooks or blades are made of finest grade steel, and are prepared for taking a super scraping edge.
The Scrapers are nicely shaped for comfortable grip and handles are polished mahogany finish.

"Reversible"

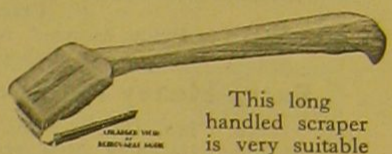
Narrow end for rough and fast scraping. Wide end for smooth finishing.
Length overall, 8¼ ins.
Takes hooks Nos. 62 and 80.
Price, complete 6/–

No. 62A Scraper



A sturdy tool for general use.
Length overall, 8½ ins. Takes hooks No. 62
Price complete, 3/6

No. 62B



This long handled scraper is very suitable for scraping under radiators, etc. Length 15 ins. Takes hooks, No. 62.
Price complete, 4/–

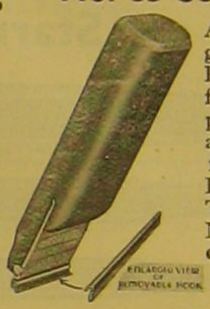
No. 80 Scraper

Gives a smooth, even surface in scraping leather belt, meat blocks floors, furniture, etc.
Length, 6½ ins.
Takes hooks No. 80. **Price complete 2/6**

No. 62 "Pioneer" Scraper

An all-round scraper for tradesmen, amateur painters etc.
Length, 4¾ ins.
Takes hooks, No. 62. **Price complete, 2/–**

No. 35 Scraper

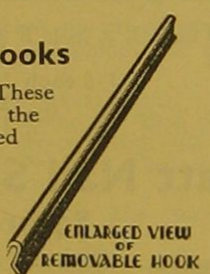


A handy tool for general service. Particularly useful for removing paint from glass along window frames, etc.
Length, 4¾ ins.
Takes hooks, No. 35. **Price complete, 1/6**

Skarsten Scraper Hooks

Renewable and sharp as razors. These hooks do not chatter or tear the work and can be resharpened repeatedly.

Hook Nos.	35	62	80
Length, ins.	1⅜	2½	3⅜
Price, each	3d.	4d.	5d.



Files

These files are specially made for re-sharpening Skarsten scrapers. Length 8 ins.
Price ... 1/6 each

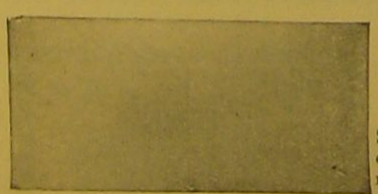
Skarsten Scraper Displays:

Attractive Window Display	30×17 ins.
Three Coloured Counter Display ...	10½×6 ,,
White Demonstration Board ...	11×6×½ ,,

Supplied Free with order for the following Assortment.
¼ doz. each—Scrapers No. 35, 62, 80, 62A.
¼ doz. each— ,, No. 62B and "Reversible."
½ doz. Extra Hooks each No. 35 and 80.
¼ doz. ,, ,, No. 62.
¼ doz. Skarsten Scraper Files.
Total list price, **£3 0 0**

Free Counter Display and Demonstration Board, with smaller order.
Price £1 9 9

London Made Scrapers



Cabinet Scrapers No. 710

Supplied sharpened on all eight edges, ready for use.

Sizes ...	3×1½	4×2	5×2½	6×3 ins.
Prices ...	**28/3**	**35/3**	**53/–**	**62/– per gross.**

Wall Scrapers No. 700

With Plain Flat Handle

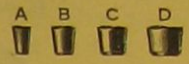
Sizes	3	3½ ins.
Prices	**7/6**	**8/3 per doz.**

NAIL SETS AND PIN DRIVE PUNCHES

Starrett Nail Set, No. 116 (Made in U.S.A.)

Made of fine grade steel, both ends hardened, centres nicely knurled, tips concaved, tops oval, and the size just right.

Length of each size, 4 inches. Diameter at tip, A $\frac{1}{16}$ inch, B $\frac{3}{32}$ inch, C $\frac{1}{8}$ inch, D $\frac{5}{32}$ inch.
Price, 8/- per dozen: 9d. each.
Price, assorted, A, B, and C, in round wooden box **9/- per dozen.**
Sent without the round box, unless otherwise ordered.

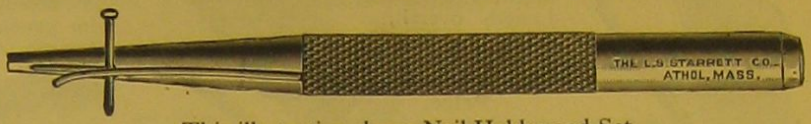


Extra Heavy Nail Set, No. 176

No. 176 A—5 ins. long, $\frac{3}{8}$ in. thick, $\frac{3}{16}$ in. at point, **1/3 each, 15/- per dozen**

No. 176B—5 ins. long, $\frac{7}{16}$ in. thick, $\frac{1}{4}$ in. at point, **1/6 each, 18/- per dozen**

Nail Holder & Set, No. 119



This illustration shows Nail Holder and Set combined. **Price 1/9 each.**

Starrett Nail Sets, No. 265 (Made in U.S.A.)

These Nail Sets are finished with knurled grip, and being square will not roll when put down.

Made in seven sizes, length of the four smaller sizes is 4 ins.; and two larger sizes 5 ins.

Each set is tempered its whole length and the points are cupped and bevelled. **The size A is specially adapted for a brad set.**

Diam. at point, A $\frac{3}{64}$ inch, B $\frac{1}{16}$ inch, C $\frac{3}{32}$ inch, D $\frac{1}{8}$ inch, E $\frac{5}{32}$ inch, F $\frac{3}{16}$ inch, G $\frac{1}{4}$ inch.

	Prices
Sizes A, B, C, D, and E	1/6 each 16/9 per dozen.
,, F and G	2/- ,, 23/6 ,,
,, Assorted, A, B, C, D, and E	16/9 ,,

Millers Falls—Goodell Pratt Nail Sets (Made in U.S.A.)

Square Head, Nos. 451-455

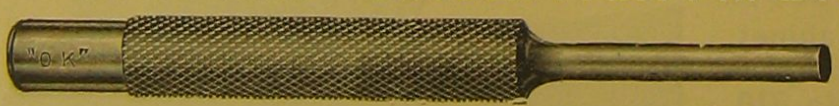
With this type of head the striking surface is large and wears longer before becoming rounded. The chance of striking the set at an angle is also considerably lessened, and the tool will not roll when placed on an inclined surface.

Nos.	451	452	453	454	455	
Diameter at point	$\frac{1}{32}$	$\frac{2}{32}$	$\frac{3}{32}$	$\frac{4}{32}$	$\frac{5}{32}$	inch.
,, of body	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	,,
Length	4	4	4	4	4	,,
Prices	**6/3**	**6/3**	**6/3**	**6/3**	**6/3**	**per dozen.**

"O K" Sets, No. 310

Diam. at point	$\frac{1}{32}$	$\frac{2}{32}$	$\frac{3}{32}$	$\frac{4}{32}$	$\frac{5}{32}$	in.
,, of body	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	,,
Length	4	4	4	4	4	,,
Prices	**3/6**	**3/6**	**3/6**	**3/6**	**3/6**	**per dozen.**

Millers Falls—Goodell Pratt Pin Drive Punches (Made in U.S.A.)



Set No. 36

Nos.	480	481	482	483
Diam. at Point	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$ in.
Diam. of Body, $\frac{1}{2}$ in.; Length 6in.				

Price ... **13/- per dozen.**

Set No. 36

Set mounted on card, contains three pin punches of following sizes:—

Diam. of Body	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$ ins.
Length ...	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$,,
Points ...	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{32}$,,

Price ... 1/6 per set

Set No. 37

Punches are same style as Set No. 36, but larger.
The Set consists of the following sizes:—

Diam. of Body...	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ ins.
Length	$2\frac{1}{4}$	$2\frac{7}{8}$	3 ,,
Points	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{4}$,,

Price ... ... 1/10 per set

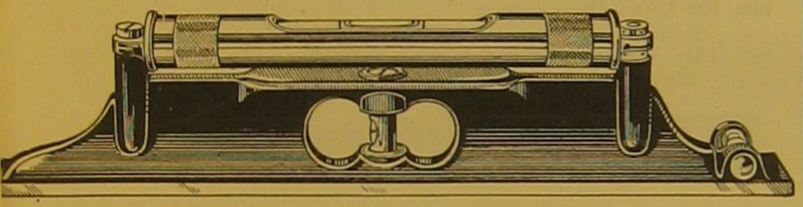
Rabone Engineers' Metal Spirit Levels and Plumbs (British Made)

Adjustable Iron Level

The base is grooved, enabling the level to be used on cylindrical objects as well as for ordinary flat surface work. Level and plumb tube are adjustable.
A nickel-plated tube protects the level glass when not in use.

No. 1381	4	6	8 ins.
Price, each	**6/–**	**7/–**	**9/3**
No. 1388 with Cross Level on Base	6		8 ins.
Price, each	**8/6**		**11/–**

With Ground and Graduated Level Glasses.
No. 1381GG, 6 ins. **12/– each**; 8 ins. **15/9 each**
No. 1388GG, 6 ins. **13/6 each**; 8 ins. **17/6 each**



Adjustable Plumb Tube and Cross Level

Made of iron and fitted with a **nickel-plated revolving tube for protecting the glass.** The plumb and cross level tubes are adjustable. V base.

No. 1382 with Plumb and Cross Level, 12 ins.
Price 13/6 each
No. 1385 with 2 Plumbs and Cross Level, 12 ins.
Price 24/– each
With Ground and Graduated Glasses.
No. 1382GG, 12 ins. ... **Price 21/– each**

Non-Adjustable Iron Spirit Level

Machine planed with grooved base. Two adjustable plumbs.

No. 1387 Size ...	9	12	15	18	24	ins.
Price	**8/6**	**9/6**	**10/6**	**11/6**	**15/–**	**each**

Iron Level

Machine planed. V groove base for levelling shafting, piping and round material. "Rainbow" level tube. Black japanned and bright parts.

No. 1386 Size	4	6	8	ins.
Price ...	**3/7**	**4/2**	**5/2**	**each**

Hexagon Pocket Level

No. 1384 Sizes			2½	3½ ins.
Price (Nickel-plated)			**1/8**	**2/– each**

Aluminium Line and Surface Level

Fitted with hooks to attach to a line. Useful in laying pipes, foundations, etc. Weight, ½ oz.
No. 1360 ... ... **1/10 each**

Aluminium Adjustable Plumb and Level

These Levels combine strength and accuracy and are very serviceable tools.
The 24 and 30-in. sizes are fitted with two pairs of plumb tubes and one pair of levels. 18-in. size has only one pair each level and plumb tubes.
All sizes are 2½ ins. high × 1 in. wide.

No. 1409.	18 ins. long ...	...	...	**18/6 each**
No. 1410.	24 ,, ,, ...	...	...	**24/– ,,**
No. 1411.	30 ,, ,, ...	...	...	**26/– ,,**

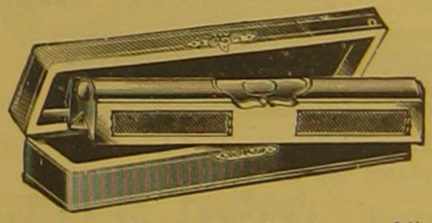
Aluminium Non-Adjustable Plumb and Level

With 2 plumb tubes and 1 level tube. Size 2¼ ins. high by 1 inch long.

No. 1415 Length		24	30 ins.
Price		**12/6**	**15/6 each**

Boat Shaped Aluminium Level and Plumb

This level is made for comfortable handling. Base is accurately planed and body finished in red japan with bright parts.
Length 9 inches. Weight, 4½ ozs.
No. 1420 ... ... **4/6 each**



Premier Engineers' Iron Level, No. 1088

Has accurately machined Vee base enabling the level to be stood on shafting and other round surfaces. Nickel-plated finish, with "Rainbow" Tube and complete in velvet lined case.

No. 1088 Size ...	4	6	9	ins.
Price ...	**5/6**	**8/6**	**12/–**	**each**

Square Iron Levels

Machined base and brass top. Nickel-plated. Fitted with "Rainbow" Tube.

No. 1393. 4 ins. long	**2/4 each**
No. 1394. 6 ,, ,, ...	**3/3 ,,**

Brass Tube Level

No. 1365. 2½ ins. long.
Price ... 10/6 per doz.

Spirit Level Displays.—Full particulars of the Rabone show-boards and displays, which are excellent selling aids sent on request.

Rabone Spirit Levels and Plumbs (British Made)

Wood Levels

Made of selected hardwood. With best proved tubes.

No. 1621. Narrow with brass-plated top.
No. 1622. Narrow with brass-plated top and tipped bottom.
No. 1326. Broad with brass-plated top.
No. 1327. Broad with brass-plated top and tipped bottom.

Sizes and Prices

Size No.	4	6	8	9	10	12	14	16	18	ins.
1621	10d.	1/2	1/5	1/7	1/10	2/2	—	—	—	each
1622	—	1/6	1/9	1/11	2/2	2/6	—	—	—	,,
1326	—	1/4	1/6	1/9	1/11	2/3	2/8	3/7	5/10	,,
1327	—	2/-	2/3	2/7	2/11	3/3	3/8	4/10	7/3	,,

Ebony Levels

No. 1340. With Brass-plated top and tipped bottom.

Size	8	9	10	12	ins.
Price	3/-	3/3	3/6	4/-	each

Narrow, with Brass-plated top

Size	4	6	ins.
No. 1801. Without brass tips on bottom	1/-	1/5	each
No. 1800. With brass tips on bottom	1/9	1/11	,,

Walnut Narrow Plumb and Level

1⅞ ins. deep × ⅝ in. wide. Walnut. Brass plate top and brass tips. Green spirit tubes.

	Size	6	9	10	12	ins.
No. 1627.	Price	1/10	2/3	2/6	2/9	each

Boat-Shaped Plumbs and Levels

Brass-plated top and tipped bottom.

Size	6	8	9	10	12	ins.
No. 1625. Rosewood	2/7	2/10	3/0	3/3	3/9	each
No. 1626. Walnut	—	—	2/8	2/11	—	,,
No. 1628. Rosewood, fitted heavy brass plates and tipped bottom	—	—	3/11	—	5/-	,,

Masons' Narrow Boxwood Rule and Plumb Level

With Brass-plated top. Brass tipped on bottom only.

	Size	6	8	10	12	ins.
No. 1372.	Price	1/8	2/-	2/4	2/8	each

Hardwood Spirit Level and Plumb

2¾ ins. deep × 1¼ ins. wide. Brass Cover plate to Spirit Level.

Sizes	12	15	18	ins.
No. 98	3/7	3/10	4/5	each
No. 97, as No. 98 but with Brass Tipped Bottom	4/7	5/1	5/8	,,

Hardwood Level and Plumb

2 3/16 ins. deep × 1 3/16 ins. wide. Spirit level and plumb protected by glass. Brass cover plate. Brass fittings to plumb holes and side views.

Size	12	15	18	24	ins.
No. 95 Price	3/-	3/6	4/-	4/8	each

Bricklayers' Levels and Plumbs

3½ ins. deep × 1¼ ins. wide. Brass Cover Plate.

Size	24	27	30	36	ins.
No. 100 With Brass-tipped Bottom	7/4	7/10	8/4	10/-	each
No. 101 Without Brass-tipped Bottom	5/8	6/-	7/4	8/-	,,

Bricklayers' Narrow Plumb and Level

Used by Bricklayers. 2⅞ ins. deep × ⅞ in. wide. Made of selected hardwood with best proved tubes.

Size	30	36	42	48	ins.
No. 77. 1 plumb and spirit level	8/-	8/6	9/-	10/6	each
No. 78. 2 plumbs and spirit level	9/-	9/6	10/-	11/6	,,

Bricklayers' Plumb and Level with Lead Plumb Bob

2⅝ ins. deep × 1 in. wide. Fitted with one non-adjustable plumb, spirit level, and plumb bob.

No. 79. Size 42 ins., 8/- each; 48 ins., 8/6 each

Bricklayers' and Masons' Plumb and Level

With Aluminium Tips.

3 ins. deep × 1 in. Adjustable. Fitted with one pair level tubes and two pairs plumb tubes.

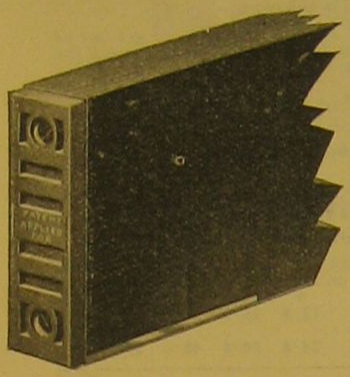
Size ... 36 ins., 15/- each 42 ins., 15/6 each 48 ins., 17/- each

Adjustable Plumb and Spirit Level

Made of hardwood. Spirit glass is set in a metal case attached to brass top plate by means of an adjusting screw and hinge. Can be instantly set. All size 3⅛ ins. deep × 1¼ ins. wide. Brass Cover Plates.

Size	24	27	30	36	ins.
No. 105. 1 Plumb, 1 Level Tube. Brass Tipped Bottom	8/8	9/-	9/4	—	each
No. 112. 1 Plumb, 1 Level Tube. Not Brass Tipped Bottom	7/8	8/-	8/4	—	,,
No. 113. 1 Plumb, 1 Level Tube, Full Brass Tipped	9/2	9/6	9/10	12/8	,,
No. 114. 1 Plumb, 2 Level Tubes, Full Brass Tipped	12/4	12/8	13/-	—	,,

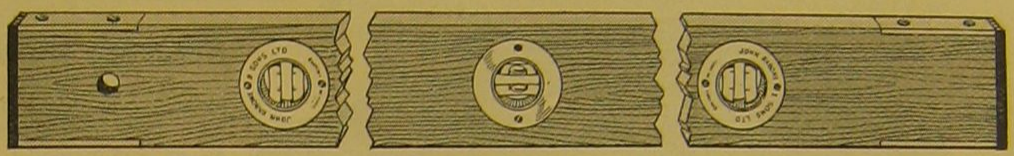
SPIRIT LEVELS



Rabone Rubber Buffer Levels (British Made)

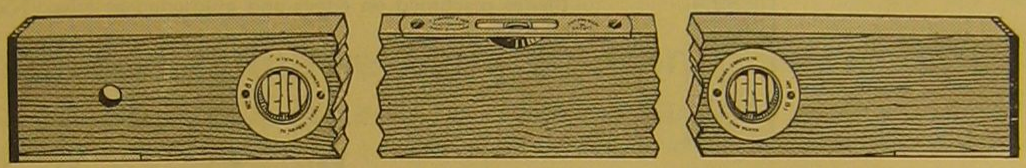
Designed to protect the level against the bumps and shocks to which builders long levels are subjected.

The rubber tips effectively minimise the risk of broken tubes, or putting the level out of true.



Rubber Buffer Plumb and Spirit Levels with Rubber End Tips and Duralumin Base Tips on all four edges, with one pair of adjustable level tubes and two pairs of adjustable plumb tubes, all protected by glass covering. The tubes are so arranged that one or other is always in a suitable position for use regardless of the way the level is picked up. Size 3 ins. deep × 1 in. wide.

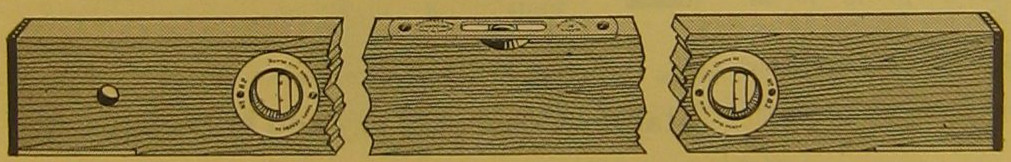
No. 90. Size, length 36 ins. **16/– each;** 42 ins. **16/6 each;** 48 ins. **18/– each.**



No.80 is similar to No. 90 **but with aluminium end tips** and **without rubber buffers.** Size 3 ins. deep × 1 inch wide.

No. 81. With double plumb tubes each end and single level tube, sunk top plate, rubber buffer tips and duralumin base tips. Size 3 ins. deep × 1 inch wide.

Length	36	42	48 ins.
No. 80	15/–	15/6	17/– each
No. 81	14/6	15/–	16/6 ,,

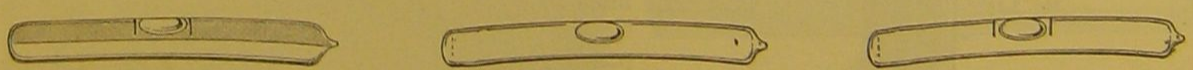


Nos. 82 and 83.—Adjustable plumb and spirit levels, rubber buffer tips as No. 81 but with single plumb tubes each end. Sizes 3 ins. deep × 1 inch wide.

Length	36	42	48 ins.
No. 82 Adjustable	13/–	13/6	15/– each
No. 83 Non-Adjustable	11/–	11/6	13/– ,,

Rabone Spirit Level Tubes

Best Quality Proved Tubes. Warranted



"Rainbow" **No. 1615** | Plain. **No. 1616** | Divided, **No. 1617**

The iridescent nature of the "Rainbow" tube imparts to the bubble certain reflected lights and enables it to be readily located even in a poor light.

No.	Description	Length ins.	1	1½	1¾	1½	2	2½	3	3½	4	4½	5
1615	"Rainbow"	Per Doz.	4/6	5/-	6/6	7/-	7/6	8/6	9/6	11/6	13/6	15/-	17/6
1616	Plain	,,	3/3	3/3	3/3	3/6	3/6	4/6	5/-	5/6	7/-	8/-	10/-
1617	Divided	,,	4/-	4/-	4/-	4/6	4/6	5/6	6/-	6/6	8/-	9/-	11/-

Assorted Lengths

Assortment	"Rainbow." Per Dozen		Plain. Per Dozen		Divided. Per Dozen	
1¼ inches to 3 inches	No. 1615A	8/-	No. 1616A	4/-	No. 1617A	5/-
1½ ,, 3½ ,,	,, 1615B	9/-	,, 1616B	4/6	,, 1617B	5/6
2 ,, 3½ ,,	,, 1615C	9/6	,, 1616C	4/9	,, 1617C	5/9

LEVELS AND TRY SQUARES

4, 6, AND 8-INCH SIZES

12-INCH SIZE. THE 18-INCH IS SIMILAR, BUT WITH DOUBLE PLUMB

Starrett Adjustable Bench Levels

(Made in U.S.A.)

Can be accurately adjusted and are not liable to get out of truth. The outer tube may be turned so as to protect the glass when not in use. The tubes are plated. All bottoms ground true.

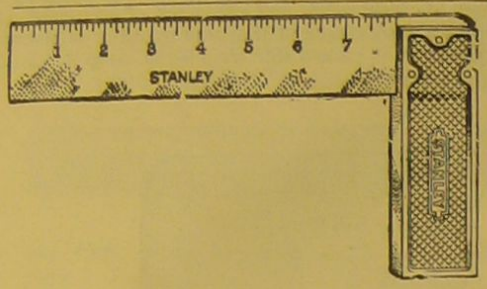
Sizes	4	6	8	12	18 ins.
No. 95, with Plain Vial	10/–	11/6	12/9	20/–	28/6 each
No. 96 with Ground and Graduated Vial	18/6	22/9	25/6	37/–	51/– ,,

Starrett Improved Levels (Made in U.S.A.)

For Shafting, etc.

Similar to Nos. 95 and 96, but with cross level, which enables one to place or hold the base on a shaft level in its cross section.

Sizes	6	8	12	18 ins.
No. 97, with Plain Vial	12/9	15/9	22/9	34/– each
No. 98, with Ground and Graduated Main Vial	24/6	28/6	40/–	57/– ,,

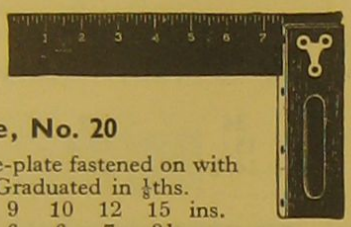


Stanley Try Squares (Made in U.S.A.)

Iron Handle, No. 12

Square inside and out, both edges and ends of handles machined. Blades machined on edges and graduated in $\frac{1}{8}$ths. Nickel-plated all over.

	4	6	8	10	12 ins.
Blade					
Handle	$3\frac{1}{8}$	$4\frac{3}{8}$	$5\frac{1}{2}$	$6\frac{5}{8}$	8 ,,
Prices	**2/9**	**2/9**	**3/–**	**4/–**	**4/9 each**

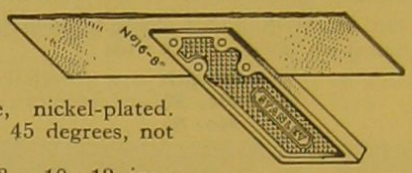


Rosewood Handle, No. 20

Insides of handles have brass face-plate fastened on with screws. Blued finish to blade. Graduated in $\frac{1}{8}$ths.

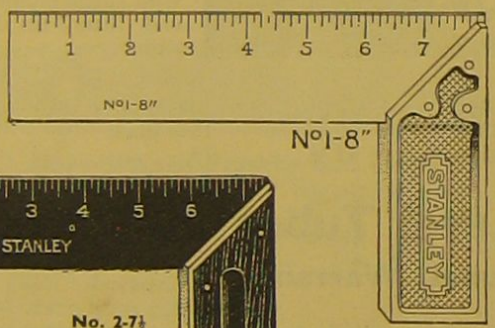
Blade	$4\frac{1}{2}$	6	$7\frac{1}{2}$	8	9	10	12	15 ins.
Handle	$3\frac{5}{8}$	$4\frac{9}{16}$	$5\frac{3}{8}$	$5\frac{3}{8}$	6	6	7	$8\frac{1}{4}$,,
Prices	**2/9**	**3/–**	**3/3**	**3/3**	**3/9**	**4/3**	**5/–**	**6/9 each**

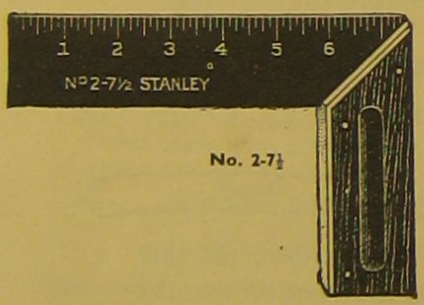
Mitre Squares, No. 16



Iron handle, nickel-plated. Blade set at 45 degrees, not graduated.

	8	10	12 ins.
Blade			
Handle	$5\frac{11}{16}$	$6\frac{3}{16}$	$6\frac{7}{8}$,,
Prices	**4/3**	**4/6**	**4/9 each**





No. 2-7½

Stanley Combined Try and Mitre Squares

(Made in U.S.A.)

Square inside and out; blades machined; **Nos. 1 and 2** graduated in $\frac{1}{8}$ths; **No. 21** graduated in $\frac{1}{8}$ths, $\frac{1}{16}$ths, and $\frac{1}{32}$nds. Styles:—Nos. 1 and 21, iron handle, nickel plated all over. No. 2 Rosewood handle and blued blade.

Iron Handle, No. 1

	6	8	10	12 ins.
Blade				
Handle	4	$5\frac{1}{16}$	6	6 ,,
Prices	**3/–**	**3/9**	**4/3**	**5/– each**

Rosewood Handle, No. 2

	6	$7\frac{1}{2}$	9 ins.
Blade			
Handle	$3\frac{7}{8}$	$4\frac{15}{16}$	$5\frac{3}{4}$,,
Prices	**4/–**	**4/6**	**5/3 each**

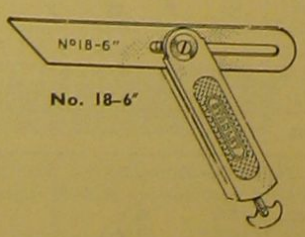
Stanley Bevels (Made in U.S.A.)

Metal Handle, No. 18

Locking device by thumb screw. Nickel-plated all over. The blade is tempered and ground on both edges and sides. The handle is ground on both edges.

	6	8	10	12 ins.
Blade				
Handle	$4\frac{1}{4}$	$5\frac{1}{8}$	$6\frac{1}{4}$	$6\frac{1}{4}$,,
Prices	**4/–**	**4/6**	**5/–**	**5/6 each**

No. 25–6"



No. 18–6"

Rosewood Handle, No. 25

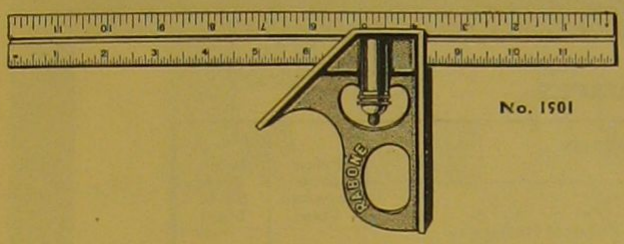
Locking device by thumb lever. Blade has machined edges and a blue finish.

	6	8	10	12	14 ins.
Blade					
Handle	$4\frac{7}{8}$	$5\frac{7}{8}$	$7\frac{3}{8}$	$8\frac{1}{2}$	$10\frac{1}{4}$,,
Prices	**2/3**	**2/6**	**2/6**	**2/9**	**3/3 each**

SQUARES AND BEVELS

Rabone Combination Try and Mitre Squares (British Made)

For Carpenters and Woodworkers

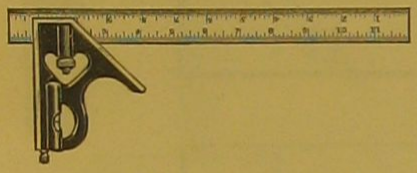


Combining Try and Mitre Squares, Depth Gauge, Height Gauge, Marking Gauge, and Rule. Can all be used separately.

Blade is 12 inches long, clearly graduated on both sides. The iron head can be clamped in any position on the blade.

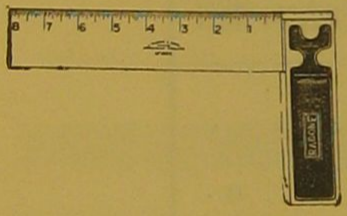
Size	4	6	9	12 ins.
No. 1901. Blade marked both sides in inches, 8ths, and 16ths (4 and 6 inch also marked 32nds) ...	3/3	3/4	3/6	4/– each
No. 1911. ,, ,, ,, ,, London and metric (,, ,, ,, ,,)	3/3	3/4	3/6	4/– ,,
No. 1902. With Level. Blade marked both sides in inches, 8ths, and 16ths ... ... (,, ,, ,, ,,)	4/3	4/4	4/6	5/– ,,
No. 1912. With Level. Blade marked both sides in London and metric ... ... (,, ,, ,, ,,)	4/3	4/4	4/6	5/– ,,

Mohawk-Shelburne Combination Squares No. 1200



Fitted with a 1 inch wide steel blade. **Figures are large and clear,** and the graduation lines are deeply etched. Graduated 8ths, 16ths on one side, and 16ths and 32nds on the other. Beam 4 ins. long, and black enamelled, except for bearing surfaces which are carefully machined, fitted with level and scriber Weight, 15 ozs.

No. 1200. 12 inch blade ... ... **5/– each**



Rabone Try Squares for Carpenters & Joiners

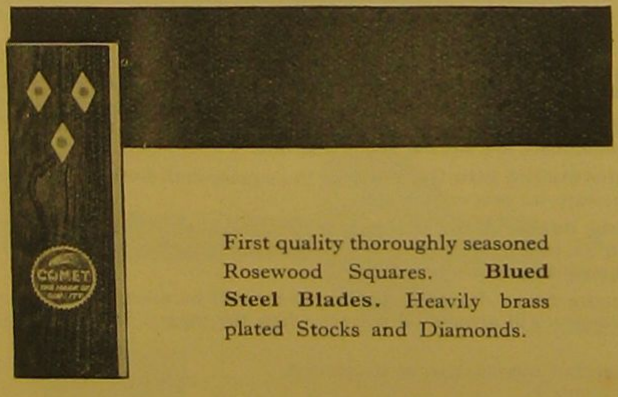
(British Made)

Graduations on both sides of blade. Iron Stocks and Steel Blades Well balanced and finished durable japan and bright edges.

No.	Marking	Length in.	4	6	8	10	12
1905	Both sides inches into 16ths.	Per doz.	30/0	36/0	40/0	54/0	66/0
1906	Ins. into 16ths one side : Millimetres reverse side ...	,,	30/0	36/0	40/0	54/0	66/0

COMET Joiners Rosewood Squares

(British Made)



First quality thoroughly seasoned Rosewood Squares. **Blued Steel Blades.** Heavily brass plated Stocks and Diamonds.

Size	4½	6	7½	9	10½	12 ins.
Sizes and Prices						
Price	2/2	2/8	3/1	3/8	4/3	4/10 each

COMET Joiners' Rosewood Bevels

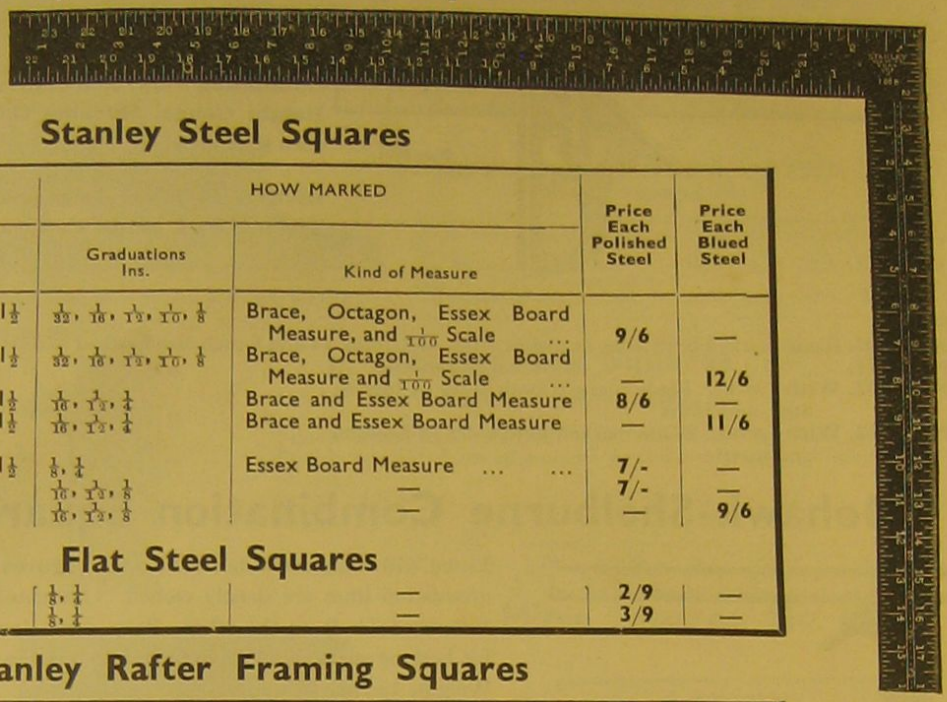
(British Made)

First quality. Blued Steel Sliding Blade. Rosewood Stock. Heavy Cast Brass Mounts.

Size	7½	9	10½	12 ins.
Sizes and Prices				
Price	3/4	3/10	4/5	5/2 each

CARPENTERS' SQUARES

Stanley Carpenters' Squares (Made in U.S.A.)



Stanley Steel Squares

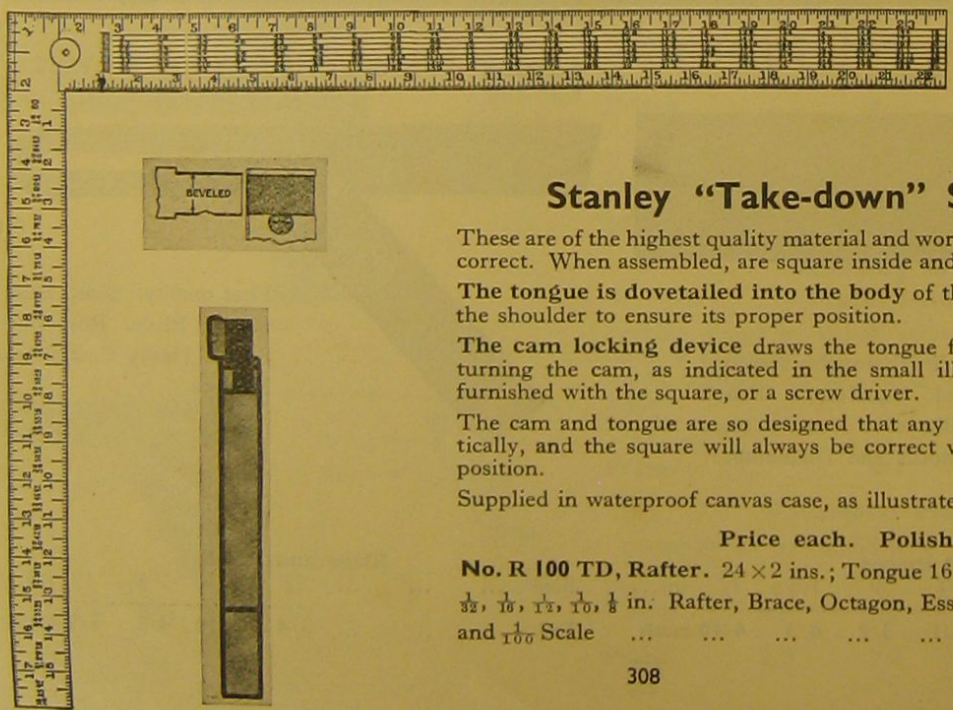
Nos.	SIZE		HOW MARKED		Price Each Polished Steel	Price Each Blued Steel
	Body Ins.	Tongue Ins.	Graduations Ins.	Kind of Measure		
100	24×2	16 or 18×1½	1/32, 1/16, 1/12, 1/10, 1/8	Brace, Octagon, Essex Board Measure, and 1/100 Scale ...	9/6	—
100 B	24×2	16 or 18×1½	1/32, 1/16, 1/12, 1/10, 1/8	Brace, Octagon, Essex Board Measure and 1/100 Scale ...	—	12/6
3	24×2	16 or 18×1½	1/16, 1/12, 1/4	Brace and Essex Board Measure	8/6	—
3 B	24×2	16 or 18×1½	1/16, 1/12, 1/4	Brace and Essex Board Measure	—	11/6
14	24×2	16 or 18×1½	1/8, 1/4	Essex Board Measure	7/-	—
18	18×1½	12×1	1/16, 1/12, 1/8	—	7/-	—
18 B	18×1½	12×1	1/16, 1/12, 1/8	—	—	9/6

Flat Steel Squares

F 2	24×1½	12×1	1/8, 1/4	—	2/9	—
F 4	24×2	12×1½	1/8, 1/4	—	3/9	—

Stanley Rafter Framing Squares

Nos.	SIZE		HOW MARKED		Price Each Polished Steel	Price Each Blued Steel
	Body Ins.	Tongue Ins.	Graduations Ins.	Kind of Measure		
R 100	24×2	16 or 18×1½	1/32, 1/16, 1/12, 1/10, 1/8	Rafter or Framing, Brace, Octagon, Essex Board Measure, and 1/100 Scale	12/-	—
R 100 B	24×2	16 or 18×1½	1/32, 1/16, 1/12, 1/10, 1/8	Rafter or Framing, Brace, Octagon, Essex Board Measure, and 1/100 Scale	—	15/-
R 3	24×2	16 or 18×1½	1/16, 1/32, 1/4	Rafter or Framing, Brace, and Essex Board Measure	9/3	—
R 3 B	24×2	16 or 18×1½	1/16, 1/32, 1/4	Rafter or Framing, Brace, and Essex Board Measure ...	—	12/3



Stanley "Take-down" Steel Squares

These are of the highest quality material and workmanship, and are mechanically correct. When assembled, are square inside and out.

The tongue is dovetailed into the body of the square and drawn up against the shoulder to ensure its proper position.

The cam locking device draws the tongue firmly against the shoulder, by turning the cam, as indicated in the small illustration, either with the key furnished with the square, or a screw driver.

The cam and tongue are so designed that any wear will be taken up automatically, and the square will always be correct when the tongue is locked into position.

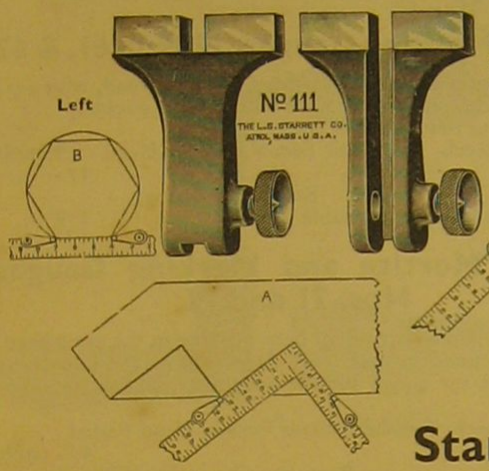
Supplied in waterproof canvas case, as illustrated.

Price each. Polished Steel.

No. R 100 TD, Rafter. 24×2 ins.; Tongue 16×1½ ins., graduated 1/32, 1/16, 1/12, 1/10, 1/8 in. Rafter, Brace, Octagon, Essex Board Measure, and 1/100 Scale **£1 6 3**

WOODWORKERS' GAUGES AND MALLETS

Starrett Stair Gauge Fixtures (Made in U.S.A.)



No. 111

Can be readily clamped to a carpenter's steel square to form a gauge for various uses, as in stairs, valley cuts, hip and rafter work.

Sketch A shows the gauge as applied for laying out a stair stringer; Sketch B, laying off hexagon angles: Sketch C, as used as a centre gauge or in quartering a circle.

Price ... 5/- per pair

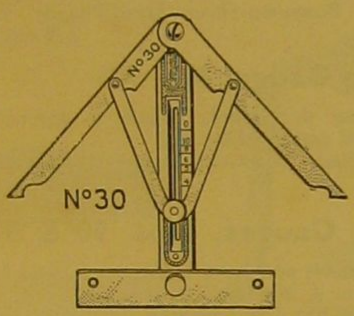
No. 470

A small set of ⅜ inch hexagonal fixtures for the carpenter's steel square.

Can be quickly clamped in place on the blade to lay out angles for stair stringers, sawing, etc.

Price ... 2/9 per pair

Stanley Angle Divider, No. 30 (Made in U.S.A.)



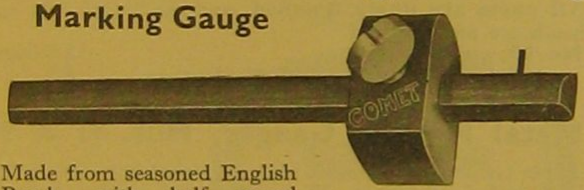
With this tool any angle can be found and bisected.

Fitting moulding or other woodwork to odd angles can be done with ease and certainty. It is graduated for parts of the circle commonly used, and can be used as a Try or T square.

Price, No. 30 Nickel-plated ... ... **9/3 each**

COMET
Marking, Cutting and Mortise Gauges (British Made)

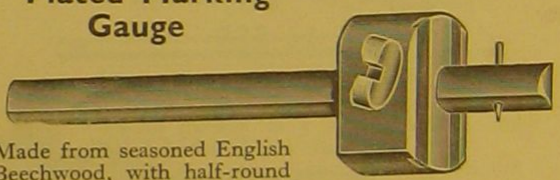
Marking Gauge



Made from seasoned English Beech, with half round polished head. Boxwood Thumbscrew.

Price 1/1 each

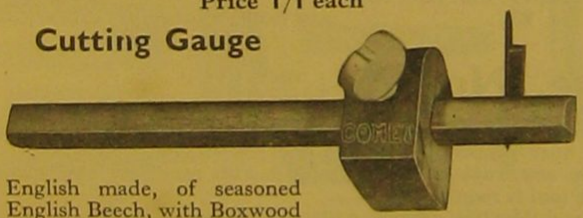
Plated Marking Gauge



Made from seasoned English Beechwood, with half-round polished head, Brass Plated.

Price 1/8 each

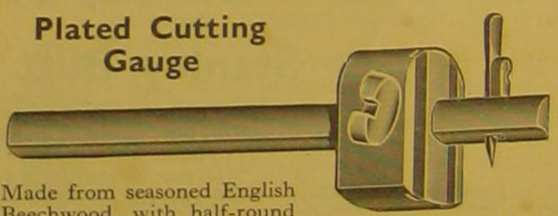
Cutting Gauge



English made, of seasoned English Beech, with Boxwood Thumbscrew. Half Round polished head.

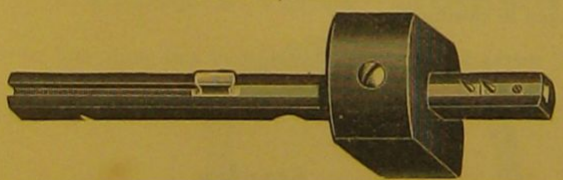
Price 1/7 each

Plated Cutting Gauge



Made from seasoned English Beechwood, with half-round polished head. Brass Plated.

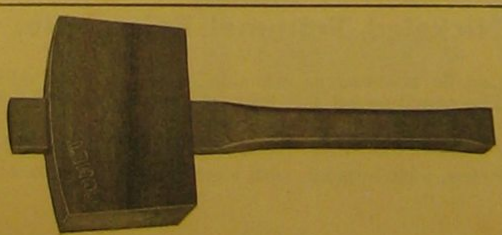
Price 2/- each



Rosewood Mortise Gauge

Made of Selected Rosewood, with plain head and Brass slide.

Price ... ... 4/3 each



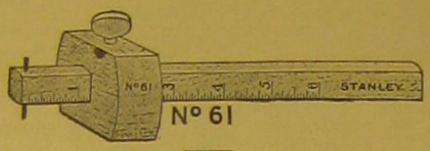
COMET Carpenters' Beechwood Mallets

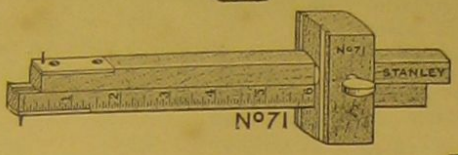
English made, of best seasoned English Beech. Oiled.

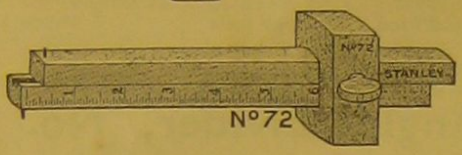
Sizes and Prices

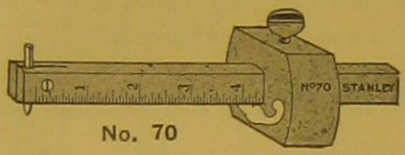
Size	... ...	4½	5	5½	6 ins.
Price	... ...	**1/7**	**1/9**	**1/11**	**2/2 each**

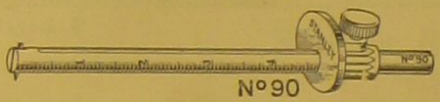
Stanley Marking Gauges (Made in U.S.A.)

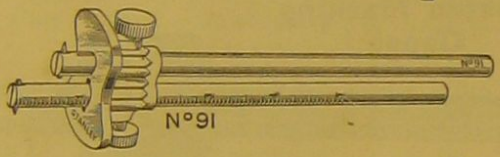


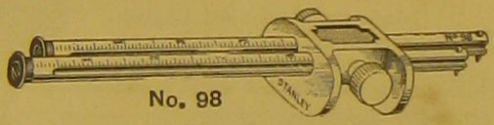












Wood Marking Gauges, Nos. 0, 61, & 62

These marking gauges are made of selected wood, with oval bars graduated in $\frac{1}{16}$ inch for 6 inches from point.
The marking points are of steel.

No. 0, Beech, Boxwood Screw, Square Head /9 each
,, **61**, ,, ,, ,, 1/– ,,
,, **62**, ,, Polished, Boxwood Screw, Square Head, Adjustable Point ... ... **1/9** ,,

Wood Mortise and Marking Gauges Nos. 71 and 72

These have two independent bars working in the same head. One pin is fixed to each bar. One side of the mortise is marked and the gauge turned over for marking the other side.

No. 71, Beech, Polished, Brass Screw, Head Plated **4/– each**
No. 72, ,, ,, Boxwood Screw, Head Plated **2/9 each**

Cutting Gauge, No. 70

Very useful for slitting thin stock. Blade is specially tempered and sharpened and is adjustable.

No. 70, Beech, Polished, Boxwood Screw, Adjustable Blade, Face Plate ... ...**2/6 each**

Metal Marking Gauges, Nos. 90 & 97

These Gauges are of metal and have single steel bars, 6½ inches long, graduated in $\frac{1}{16}$ inch for 5 inches.

Two types of cutters are used—one a pin point, the other a roller cutter, for use close into rabbets or corners and recommended for working across grain, over knots, etc.

All parts are finely finished, and the metal bars and heads are nickel-plated.

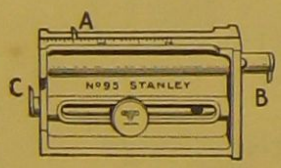
No. 90, with Pin Point ... ... **2/9 each**
,, **97**, ,, ,, and Roller Cutters ... **4/–** ,,

Metal Mortise Gauges, Nos. 91 & 98

These Gauges have double bars, 6½ inches long, graduated in $\frac{1}{16}$ inch for 5 inches. They correspond in other respects to the Metal Marking Gauges described above.

No. 91, with Pin Points ... ... **4/9 each**
,, **98**, ,, ,, and Roller Cutters ... **6/–** ,,

Stanley Butt Gauge, No. 95 (Made in U.S.A.)



In hanging doors there are three measurements to be marked, the location of butt on casing, of butt on door, and thickness of butts on both casing and door.

These butt gauges have three separate cutters arranged with necessary clearances, so that no change of setting in the tool is required.

They are also Rabbet Marking and Mortise gauges, with a scope sufficient for all door trim, including lock plates, strike plates, etc.

Cutter "A" marks from the jamb in the rabbet.
Cutter "B" from edge of door engaged in closing.
Cutter "C" the thickness of butt.

For nailed on strikes cutter "B" marks for the butt on both door and jamb, and cutter "C" the thickness of butt.

All bars are locked by set screws, and graduated in $\frac{1}{16}$ inch for 2 inches. Nickel-plated.

No. 95, Iron Body, Steel Bars ... ... **6/– each**

Stanley Pencil Clasp, No. 8

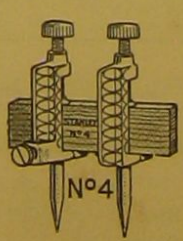
(Made in U.S.A.)

No 8

This tool is for attaching to a pair of ordinary dividers. A very handy little article. Length, 1¼ inches, nickel-plated.

Price ... ... **8/6 per doz.**

Packed one dozen clasps on ornamental card, two cards in a box.



Stanley Nickeled Trammel Points, No. 4

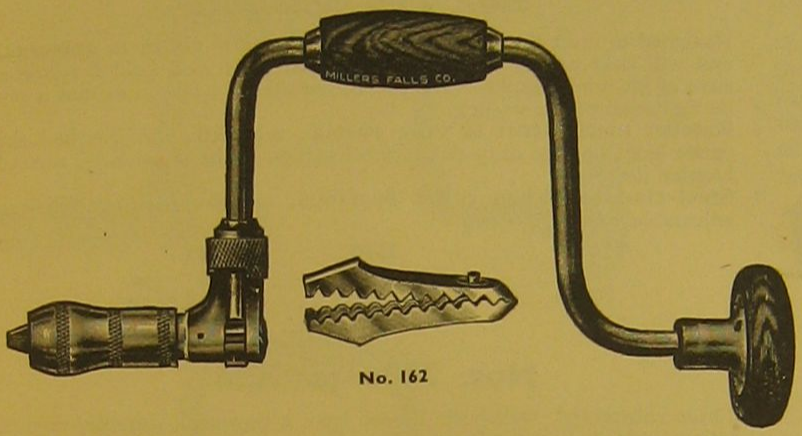
(Made in U.S.A.)

Can be attached to one side of any straight stick. The pencil socket will take an ordinary sized pencil, or a full-sized oval shaped carpenter's pencil.

Trammel Point, for straight edge up to 1¼ inches.

Price, nickel-plated, with steel points **5/– per set**

Millers Falls—Goodell Pratt Carpenters' Ratchet Braces (Made in U.S.A.)



No. 162

No. 162

This popular-priced brace has a new design ratchet socket and improved ratchet gear and pawls.

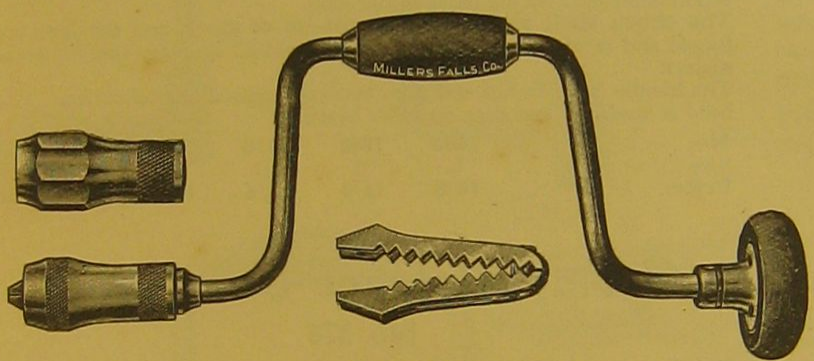
The chuck has malleable alligator jaws. Stained hardwood head, with plain bearing, and handles with inserted metal rings. Metal parts are polished.

Size, 10 ins. ... ... **Price, 8/– each**

Nos. 1661, 1662 & 1663

Similar in design to No. 162 series but metal parts nickel-plated.

Nos.	1661	1662	1663
Sizes	12	10	8 ins.
Prices	9/3	9/3	9/3 each



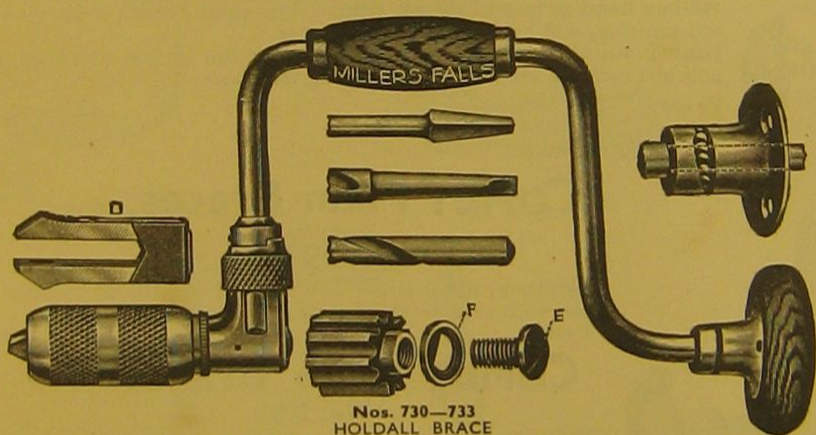
No. 421—423

Nos: 421, 422, and 423

The chucks have improved malleable alligator jaws.

The ratchet is semi-boxed, and the head, which is plain, and handle with inserted metal rings are of stained hardwood. Exposed metal parts are polished and nickeled.

Nos. ...	421	422	423
Sizes	12	10	8 ins.
Prices	12/6	12/3	12/3 each



Nos. 730—733
HOLDALL BRACE

Nos. 730, 731, 732, and 733 Holdall

The chuck has milled forged steel jaws and holds round shanks and bit-stock shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch diameter, also No. 1 Morse Taper Shanks.

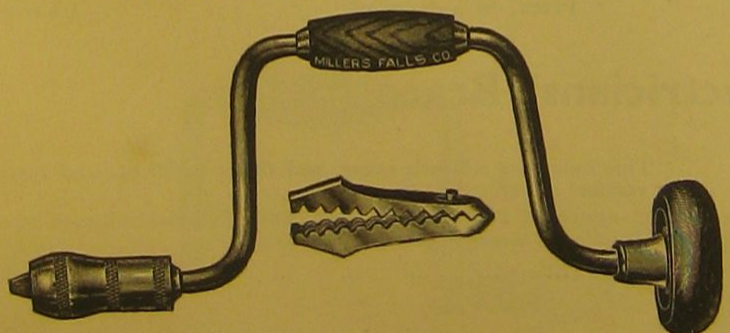
Metal parts are polished and nickeled steel.

It has a ball-bearing head and is of cocobolo wood. The handle has inserted steel rings, adjustable bearings, and is clamped by screws.

The patent cup washer F and screw E hold chuck to sweep without working loose.

Nos. ...	730	731	732	733
Sizes ...	14	12	10	8 ins.
Prices ...	22/6	21/8	18/6	18/6 each

Millers Falls—Goodell Pratt Plain Braces (Made in U.S.A.)



Nos. 141, 142, and 143

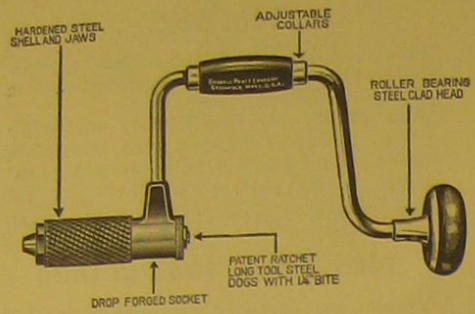
These Braces are low-priced, strong, and fitted with a steel chuck with cast alligator jaws.

The head is of the plain bearing type, the handles are stained hardwood, and metal parts are polished.

Nos.	141	142	143
Size	12	10	8 ins.
Price	4/2	4/2	4/2 each

Millers Falls - Goodell Pratt Ratchet Braces (Made in U.S.A.)

Nos. 2510 and 2512


HARDENED STEEL SHELL AND JAWS
ADJUSTABLE COLLARS
ROLLER BEARING STEEL CLAD HEAD
PATENT RATCHET LONG TOOL STEEL DOGS WITH 14 BITE
DROP FORGED SOCKET

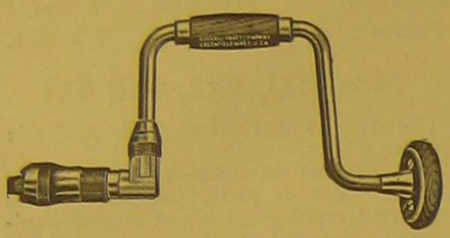
Designed to meet the severest requirements. **The chuck is universal** and will hold round, square, or taper shanks—it will hold the largest sizes of bit-brace shanks. The end of the shell is hexagon so that it can be tightened with a wrench.

Ratchet mechanism is very strong—the teeth are broached the entire length of the drop-forged steel socket. Shift is made by turn of knurled disc.

Steel-clad head has roller bearings, and handle runs between adjustable collars.

No.	**2510**	**2512**
Size	10	12 ins.
Price	**23/–**	**23/9 each**

Nos. 7006 to 7014



These substantial, well-built Braces have a powerful, durable, ratchet action controlled by the large shifter ring.

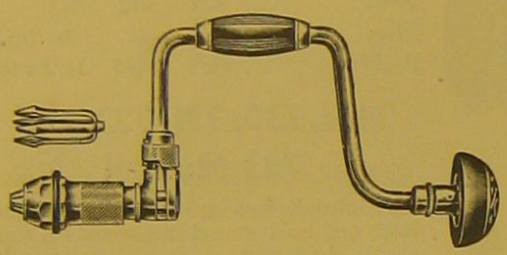
The chuck shell and socket are made of steel, and the jaws are forged and carefully heat treated. They hold all ordinary size bit-brace shanks.

The handle is hardwood and runs between adjustable steel collars. The head is steel clad and runs on roller bearings.

No.	**7006**	**7008**	**7010**	**7012**	**7014**
Size	6	8	10	12	14 ins.
Price	**16/8**	**16/8**	**17/6**	**17/6**	**18/4 each**

COMET Ratchet Braces (Foreign)

No 376



This brace has a 10 inch sweep, nickel-plated, ball bearing. Fitted with **rubber head grip and chuck ring.** The chuck, which is four-jaw, self-centring, will hold shanks of all shapes.

Highly suitable for cabinet makers, as it can be laid on glass, or polished surfaces, etc., without damaging the article.

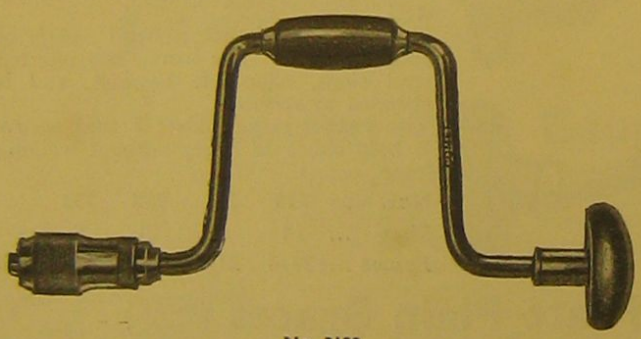
Price ... ... **13/3 each**

COMET Plain Braces, (Foreign)

No. 373

Similar in detail to No. 376 above, but **without ratchet** and with two-jaw chuck, and alligator jaws.

Price ... ... **7/3 each**



No. 3180

COMET Plain Braces (British Made)

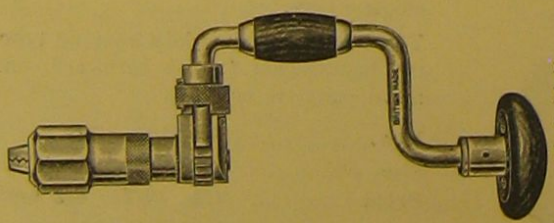
No. 3180

Is a good quality sturdy plain brace, with forged steel alligator jaws. **Half-clad head.**

Price, 8 inch sweep ... ... **3/4 each**

Price, 10 inch sweep ... ... **3/6 each**

COMET Electricians' Brace (British Made)

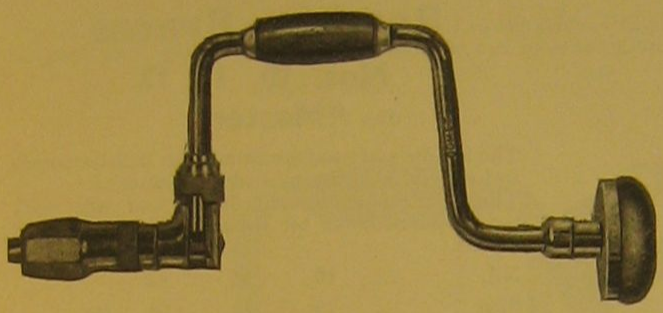


This Brace has a 5-inch sweep, and allows sufficient hand space for comfort in use.

Ring-operated ratchet, half-clad head. Polished hardwood head and handle. A soundly constructed brace.

Price ... ... **6/6 each**

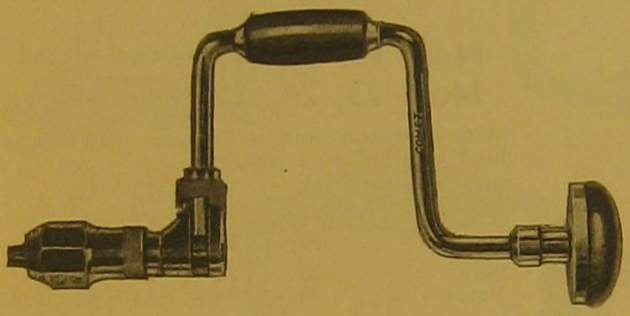
COMET Carpenters' Ratchet Braces



No. 336 (British Made)

Heavily nickel-plated, ball bearing ratchet brace, heavy gauge frame, polished hardwood head and handle. **Full metal clad ball bearing head,** tapered octagon chuck with steel alligator jaws. A well finished tool, suitable for constant use.

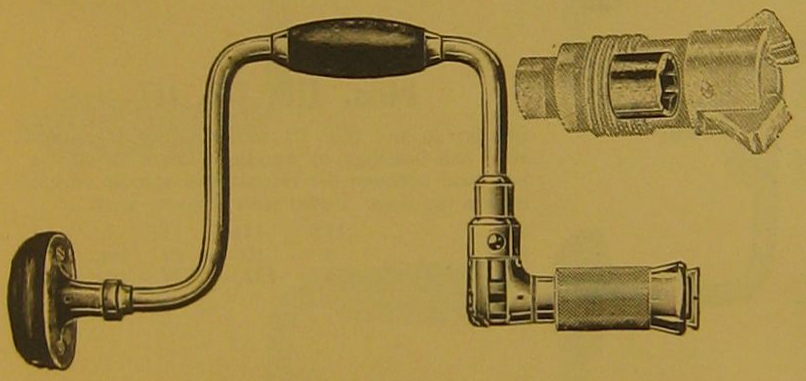
Price, 8 inch sweep ... ... **10/– each**
Price, 10 inch sweep ... ... **10/6 ,,**



No. 678 (British Made)

Nickel-plated, strongly made brace, to stand up to rough usage and hard wear. **Polished hardwood head and handle.** Head is metal clad and ball bearing. Octagon chuck with steel alligator jaws.

Price, 8 inch sweep ... ... **8/– each**
Price, 10 inch sweep ... ... **8/6 ,,**

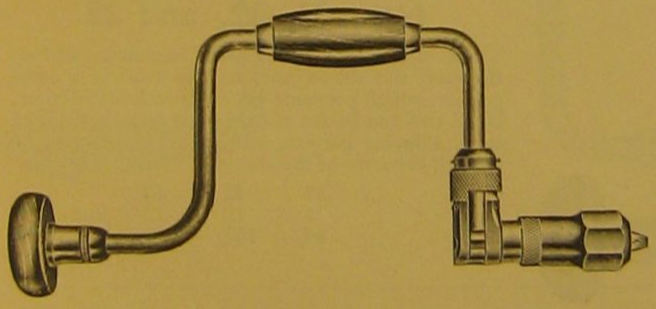


No. 167 (Foreign)

This is a high-grade tool with 10 inch sweep. Nickel-plated, with ball bearings, clad head, push-pin ratchet, hardwood head and handle. **The quick-grip chuck** with unbreakable steel jaws is a special feature.

The bit or drill drops into a steel socket and is held firmly while the pivoted jaws are closed securely upon the shank by a turn of the chuck shell.

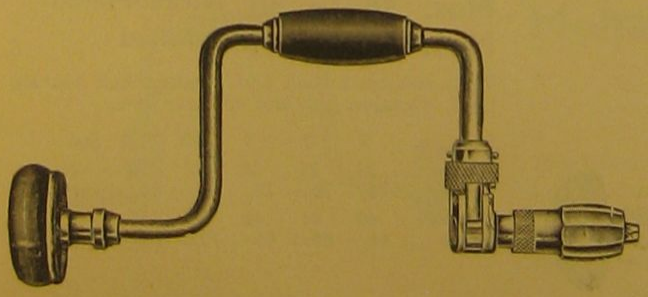
Price ... ... **10/3 each**



No. 44 (Foreign)

This brace has a 9 inch sweep, is nickel-plated, and fitted with ball bearings and ring-operated ratchet. **The head and handle are of hardwood,** and steel washers are fitted to the handle. Chuck is of steel with alligator jaws.

Price ... ... **5/9 each**

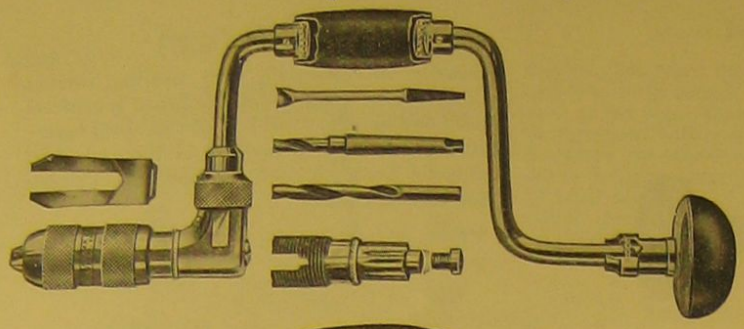


No. 88 (Foreign)

This is similar to the No. 44 Brace, described above, but is fitted with a tapered octagon chuck. Full clad head. 10 inch sweep.

Price ... ... **6/6 each**

Chapman Carpenters' Braces (British Made)

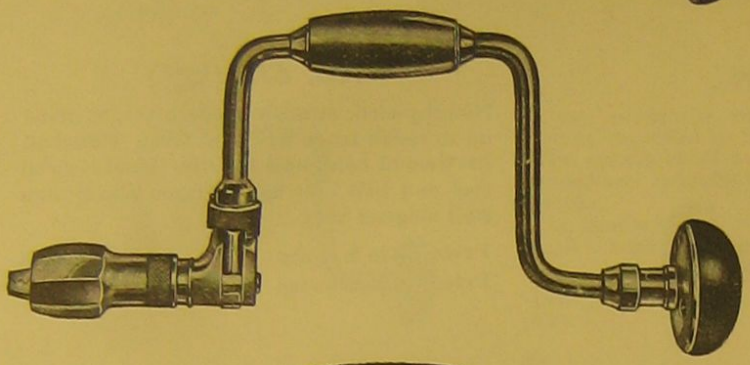


Ratchet Braces

Nos. 10, 11, 12 "Master"

The handle and head are fitted with ball-bearings, and are made of an unbreakable material.
The chuck is of special design and will hold taper, parallel, or bit shanks; it has an Acme thread.

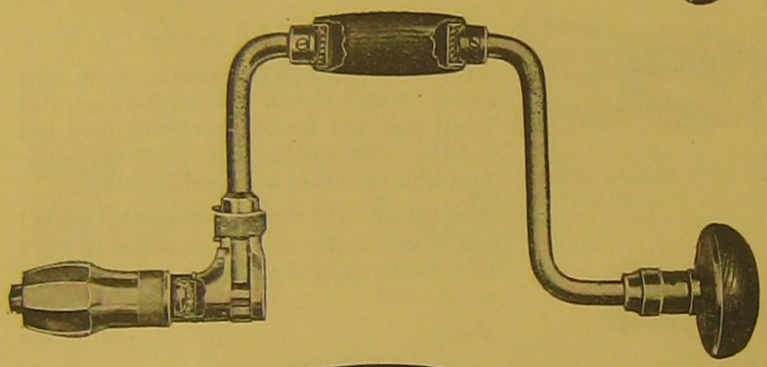
No.	...	10	11	12	
Size	...	10	12	14	ins.
Price	...	**198/–**	**200/–**	**202/–**	**per doz.**



Nos. 15, 16, 17. Nickel-plated
Nos. 23, 24, 25. Polished

With hardwood head and handle. Ball-bearing head. Steel alligator jaws.

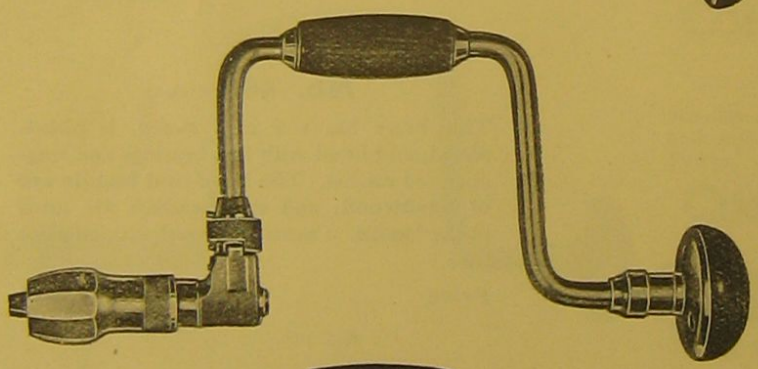
Size	...	8	10	12	ins.
No.	...	**15**	**16**	**17**	
Price	...	**90/–**	**96/–**	**98/–**	**per doz.**
No.	...	**23**	**24**	**25**	
Price	...	**78/–**	**84/–**	**86/–**	**per doz.**



Nos. 115, 116, 117

Similar to the No. 15 series, but has adjustable ball-bearings in handle. There is also a ball race between the ratchet and spindle which carries the jaws. Fitted with alligator jaws.

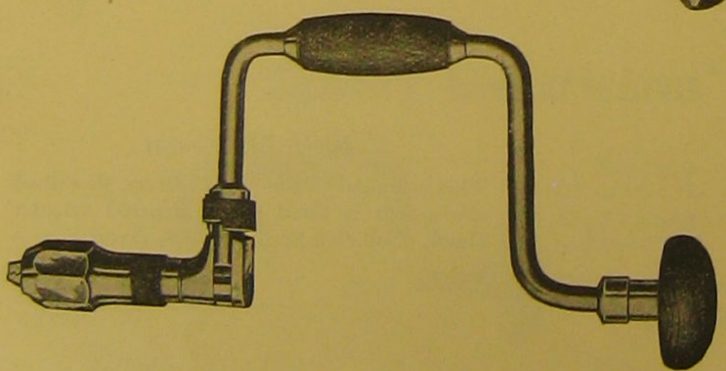
No.	...	**115**	**116**	**117**	
Size	...	8	10	12	ins.
Price	...	**126/–**	**132/–**	**134/–**	**per doz.**



Nos. 31, 32, and 33

These braces are fitted with enclosed ratchet. Between the sleeve and ratchet head is a steel washer, which prevents wear and reduces friction. Head and handle are of hardwood; the jaws are of steel, alligator pattern, and adjust themselves to the full capacity of the sleeve.

No.	...	**31**	**32**	**33**	
Size	...	8	10	12	ins.
Price	...	**96/–**	**102/–**	**104/–**	**per doz.**



Nos. 34 to 38 Nickel-Plated
Nos. 40 to 44 Polished

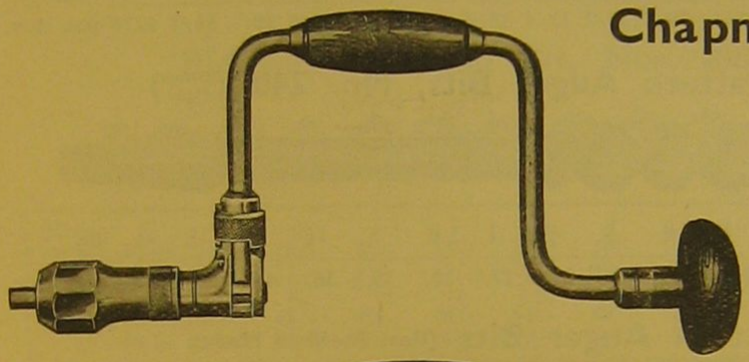
With teakwood head and handle. Ball bearing head. Octagon grip and alligator jaws.

Size		5	7	8	10	12	ins.
No.	...	**34**	**35**	**36**	**37**	**38**	
Price	...	**78/–**	**78/–**	**78/–**	**84/–**	**86/–**	**per doz.**
No.	...	**40**	**41**	**42**	**43**	**44**	
Price	...	**66/–**	**66/–**	**66/–**	**72/–**	**74/–**	**per doz.**

Chapman Ratchet Brace No. 146 (British Made)

Nickel-plated, ball bearing Brace. Head is metal clad. **Polished hardwood head and handle. Octagon chuck** with alligator jaws. Soundly constructed, made in two sizes as follows:

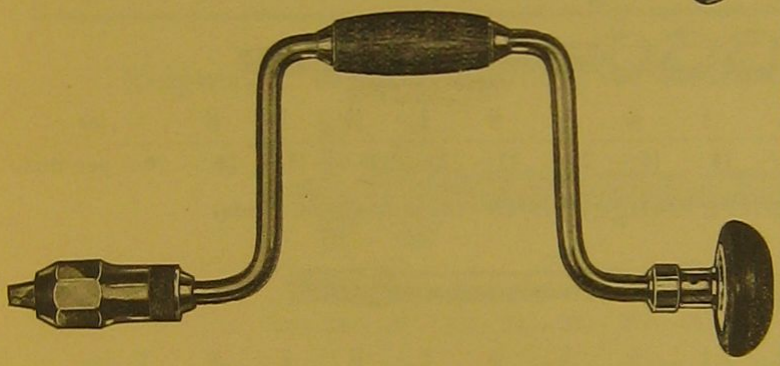
Price, 8 inch ... ... **8/8 each**
Price, 10 inch ... ... **8/8 ,,**



Chapman Ratchet Braces (British Made)
Nos. 58 to 61

With beechwood head and handle. Octagon chuck with steel plain jaws. Bright finish.

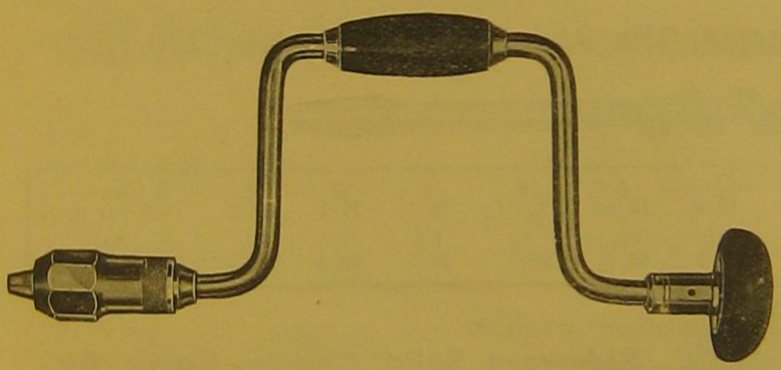
No.	...	**58**	**59**	**60**	**61**	
Size	...	8	9	10	12	ins.
Price	...	**56/–**	**60/–**	**66/–**	**68/–**	**per doz.**



Chapman Plain Braces
(British Made)
Nos. 46 to 50. Nickel-Plated.
Nos. 52 to 56. Polished.

With teakwood head and handle. Ball bearing head. Octagon chuck and alligator jaws.

Size	...	5	7	8	10	12	ins.
No.	...	**46**	**47**	**48**	**49**	**50**	
Price	...	**32/–**	**34/–**	**38/–**	**42/–**	**44/–**	**per doz.**
No.	...	**52**	**53**	**54**	**55**	**56**	
Price		**26/–**	**28/–**	**32/–**	**36/–**	**38/–**	**per doz.**



Nos. 63 to 67

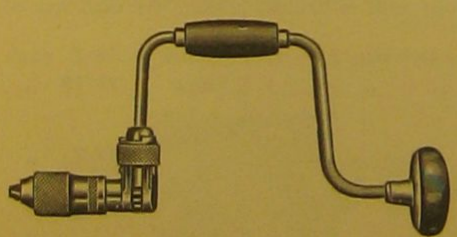
With octagon chuck and plain jaws. Plain head. Bright finish.

No.	...	**63**	**64**	**65**	**66**	**67**	
Size	...	7	8	9	10	12	ins.
Price	...	**22/–**	**24/–**	**26/–**	**34/–**	**36/–**	**per doz.**

Spare Jaws

Alligator Jaws
9/– per doz.
Nickel-plated
9/6 per doz.

Plain Jaws
8/– per doz.
Nickel-plated
8/6 per doz.



Mohawk Shelburne Ratchet Brace
No. 1710 (Made in U.S.A.)

This Brace has a Barber Chuck, with steel alligator jaws. Ring operated Ratchet. **Metal clad, ball-bearing head.** All parts nicely polished nickel-plated and buffed.

No. 1710MS. Size, 10 inch sweep ... **Price, 11/3 each**

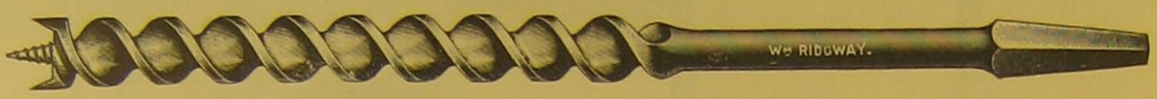
AUGER BITS

Millers Falls—Goodell Pratt Solid Centre Auger Bits No. 542 (Made in U.S.A.)

The solid stem extending through the centre of this bit makes a rigid, strong tool, particularly where the shank joins the twist Has two extension lips, spurs, and cutting edges. Polished all over.

Size	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	1 1/8	1 1/4	1 3/8	1 1/2	ins.
Price	18/9	16/8	16/8	16/8	18/9	20/10	22/11	25/-	29/2	29/2	33/4	33/4	37/6	37/6	43/9	50/-	56/3	62/6	per doz.

Ridgways Jennings Pattern Auger Bits, No. 240 (British Made)



Size	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	1 1/8	1 1/4	1 3/8	1 1/2	ins.
Price	24/-	18/-	18/-	18/-	18/-	18/-	20/-	22/-	24/-	24/-	27/-	27/-	30/-	30/-	36/-	44/-	50/-	56/-	per doz.

COMET Jennings Pattern Auger Bits (Best Sheffield Made)

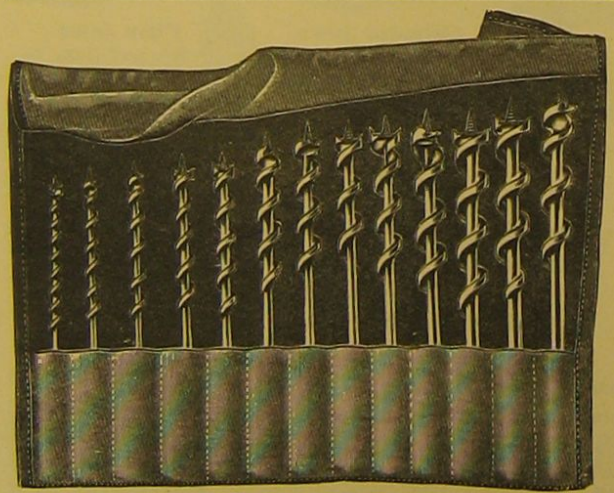
Size	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	ins.
Price	22/-	16/-	16/-	16/-	16/-	16/-	18/-	20/-	22/-	22/-	25/-	25/-	28/-	28/-	per doz.

COMET Solid Centre Auger Bits (Best Sheffield Made)

Size	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	ins.
Price	16/-	14/-	14/-	14/-	16/-	18/-	19/-	21/-	25/-	25/-	28/-	28/-	32/-	32/-	per doz.

Ridgways Solid Centre Auger Bits and Dowel Bits, No. 220 (British Made)

Sizes ...	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	in.
Prices ...	18/9	16/8	16/8	16/8	18/9	20/10	22/11	25/-	29/2	29/2	33/4	per doz.
Sizes ...	7/8	15/16	1	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	ins.
Prices ...	33/4	37/6	37/6	43/9	43/9	50/-	50/-	56/3	56/3	62/6	62/6	per doz.



Ridgways Solid Centre Auger Bits No. 220, in Sets (British Made)

Various assortments of Bits can be supplied in strong and durable canvas rolls with individual pockets for each size of bit.

With 6 Bits,	one each size, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4 inch	14/7	each
,, 6 Bits	,, ,, 1/4, 3/8, 1/2, 5/8, 3/4, 1 inch ...	15/10	,,
,, 10 Bits	,, ,, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1 in. and screwdriver bit	24/2	,,
,, 11 Bits	,, ,, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 7/8, 1 inch ...	28/4	,,
,, 13 Bits	,, ,, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1 in.	32/6	,,

BITS AND BIT GAUGES

Ridgway's Jennings Pattern Dowel Bits, No. 241 (British Made)

Size	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	ins.
Price	24/-	18/-	18/-	18/-	18/-	18/-	20/-	22/-	24/-	24/-	per doz.

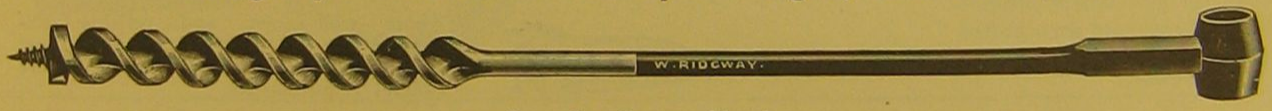
Ridgway's Wagon Bit, Nos. 108 and 109 (Bright) (British Made)

Sizes	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	1 1/16	ins.
Prices, 10-in. twist	26/-	26/-	28/-	28/-	30/-	30/-	32/-	32/-	35/-	35/-	38/-	38/-	per doz.
,, 12-in. twist	32/-	32/-	33/-	33/-	35/-	35/-	37/-	37/-	40/-	40/-	43/-	43/-	,,
Sizes	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4	1 7/8	2	—	ins.
Prices, 10-in. twist	41/-	41/-	44/-	44/-	48/-	53/-	53/-	58/-	64/-	70/-	76/-	—	per doz.
,, 12-in. twist	46/-	46/-	50/-	50/-	54/-	58/-	60/-	66/-	71/-	77/-	83/-	—	,,

Ridgway's Wagon Builders' Twisted Centre Bit, No. 113 (British Made)

Size	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	3	ins.
Price ...	26/-	28/-	30/-	32/-	34/-	35/-	37/-	40/-	42/-	45/-	48/-	52/-	56/-	60/-	64/-	72/-	per doz.

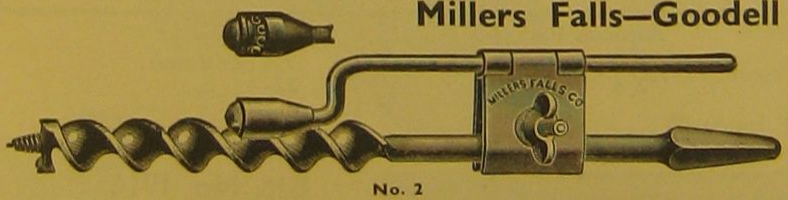
Ridgway's Scotch Screw Eyed Auger, No. 200 (British Made)



Round or Square Shanks

Size	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	ins.
No. 200. Bright, Barrel Eye ...	23/-	23/-	26/-	31/6	34/6	39/-	43/6	50/-	53/6	60/-	per doz.
No. 200. Black, Barrel Eye ...	20/6	20/6	23/6	28/-	31/6	36/-	38/6	42/-	51/-	56/-	,,

Size	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 1/2	2 3/4	3	ins.
No. 200. Bright, Barrel Eye ...	64/-	72/-	77/-	85/-	105/-	126/-	160/-	220/-	284/-	per doz.
No. 200. Black, Barrel Eye ...	59/-	67/-	73/6	80/-	—	—	—	—	—	,,

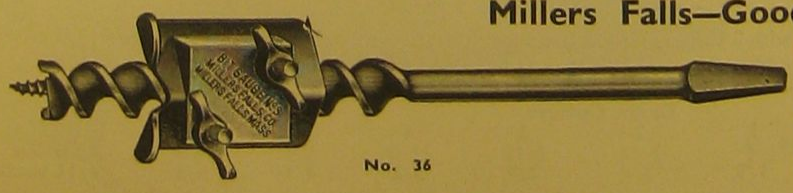


No. 2

Millers Falls—Goodell Pratt Anti-Friction Bit Gauge, No. 2 (Made in U.S.A.)

This gauge is fitted with ball in end, running on six smaller balls, to prevent defacing delicate material when in contact with gauge.
Entirely polished and nickelled. Length, 5¾ inches.

Price ... ... 2/6 each



No. 36

Millers Falls—Goodell Pratt Bit Gauge, No. 36 (Made in U.S.A.)

A simple device to be clamped at any point on auger bit.
Contact with work by two smooth shoes, so made as not to mar surface of work.

Price ... ... 1/8 each

CENTRE BITS & EXPANSIVE BITS

COMET Cast Steel Centre Bits, Black. Best Sheffield Made.

Size ...	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	ins.
Price ...	5/6	6/–	6/–	6/–	6/6	7/–	8/–	9/–	10/6	12/–	13/–	14/–	16/–	18/–	21/–	per doz.

COMET Improved Fast Cutting Centre Bits. Best Sheffield Made. Nicely Polished.

Size ...	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	ins.
Price ...	9/–	9/6	10/6	11/–	11/6	13/1	13/6	15/–	17/–	19/6	21/6	24/–	27/–	30/6	34/–	per doz.

COMET Cobra Pattern Bits Best Sheffield Made.

Size	2	3	4	5	6	7	8	9	10	11	12–32nds.
Price	4/–	4/–	4/–	4/–	4/–	4/–	4/–	5/–	5/–	6/–	6/– per doz.

COMET Snail Horn Countersinks Black

Best Sheffield Made

Size	3/8	1/2	5/8	3/4	ins.
Price ...	6/–	6/–	7/–	11/–	per doz.

COMET Rosehead Countersinks Black

Best Sheffield Made

Size	3/8	1/2	5/8	3/4	ins.
Price ...	6/–	6/–	9/–	12/–	per doz.

Clark's Expansive Bits (Made in U.S.A)

These well-known and reliable Expansive Bits are made in a range of three sizes, the boring capacity of which covers general requirements.

No. 1. —Large size Two Cutters (boring 7/8 to 1 3/4 and 1 3/4 to 3 inches) ... **108/– per dozen.**
,, 1½.—Medium ,, , (,, 5/8 ,, 1 1/8 ,, 1 1/8 ,, 2 ,,) ... **91/8** ,,
,, 2. —Small ,, ,, ,, (,, 1/2 ,, 7/8 ,, 7/8 ,, 1½ ,,) ... **75/–** ,,

Extra Cutters, interchangeable with all Clark's Bits.

No. 1. — 1/2 to 7/8 inch	**12/6 per dozen**	**No. 4.**—1 3/4 to 3 inches	**25/- per dozen**
,, 1½.— 5/8 ,, 1 1/8 ,, ...	**16/9** ,,	,, 5.—3 ,, 4 ,, ...	**37/6** ,,
,, 2. — 7/8 ,, 1½ ,, ...	**16/-** ,,	,, 6.—4 ,, 5 ,, ...	**50/-** ,,
,, 2½.—1 1/8 ,, 2 ,, ...	**21/-** ,,	,, 7.—5 ,, 6 ,, ...	**62/6** ,,
,, 3. — 7/8 ,, 1 3/4 ,, ...	**22/-** ,,		

Replace Parts

Plates and Straps—For 1½ ins. ... **6/– per dozen**; for 3 ins. ... **7/6 per dozen.**
Screws— ,, ,, ... **2/6** ,, ; ,, ,, ... **3/–** ,,

Ridgway's Expansive Bit, No. 1914. (British Made)

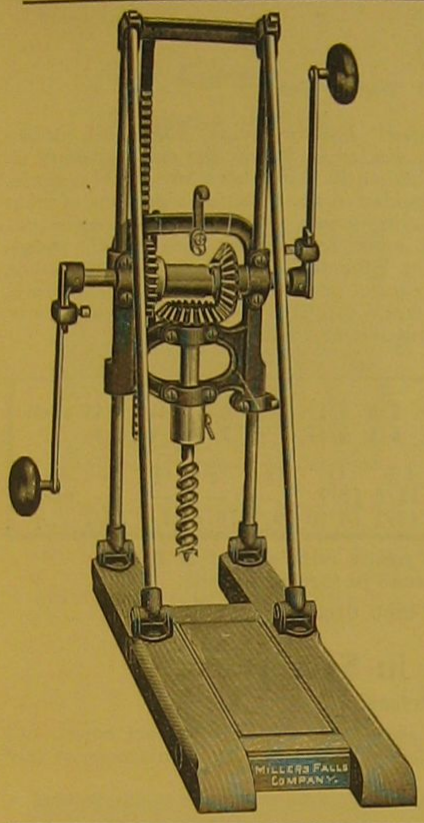
Made in 2 Sizes

Large Size with 2 Cutters boring 7/8 to 3 ins. ... ... **Price 13/6 each**
Small Size with 2 Cutters boring 1/2 to 1½ ins. ... ... ,, **9/6** ,,

Extra Cutters

No.	1	2	3	4	5	6	7
Size ins.	1/2–7/8	7/8–1½	7/8–1 3/4	1 3/4–3	3–4	3½–5	4½–6
Price	1/9	2/–	2/9	3/2	4/11	6/5	7/11 each

WOOD BORING MACHINE, AUGERS, ETC.



Millers Falls — Goodell Pratt Boring Machine, No. 145 (Made in U.S.A.)

This machine bores at any angle from the vertical within an arc of 50 degrees.

The depth of hole is regulated by a stop. Boring depth 12 ins.

Wooden bottom board; uprights and angle rods, spindle and crank made of steel.

The frame is locked automatically when in vertical position, and released by pressing on a thumb latch.

The length of cranks is adjustable.

The auger is removed from hole by pushing a latch and continuing revolution of cranks in same direction as when boring.

Metal frame, black enamelled, all bright parts polished.

Price, without Augers **£4 3 9**

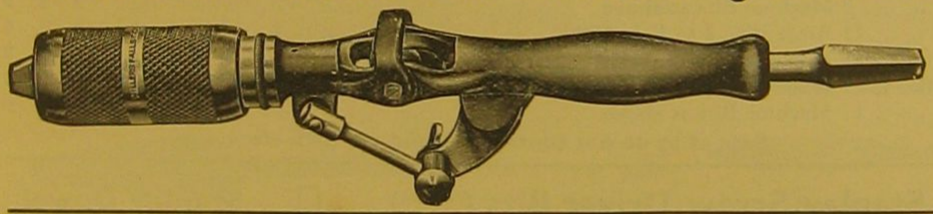
COMET Boring Machine Augers for Above

(Sheffield Made)

With Single Lip. Shanks ½ inch diameter

Size	½	⅝	¾	⅞	1	1⅛	1¼	1⅜	1½	1¾	2	ins.
Prices	**3/6**	**3/6**	**3/10**	**4/6**	**5/3**	**5/11**	**6/8**	**7/4**	**8/4**	**9/9**	**11/2**	**each**

Millers Falls—Goodell Pratt Universal Angular Bit Stock, No. 108 (Made in U.S.A.)

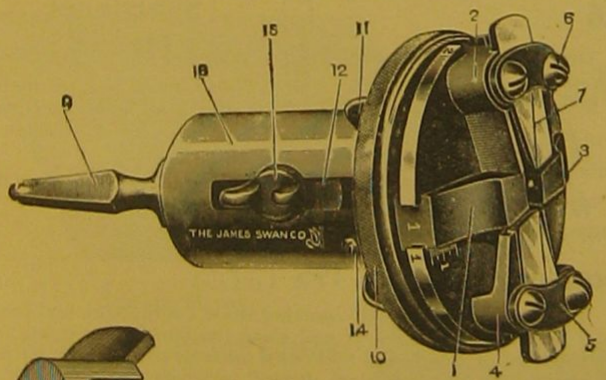


To be used with a bit brace, or breast drill, either as an extension or angular borer.

Adjustable from 180° to 125°

Fitted with Master Chuck.

Price ... ... 14/2 each

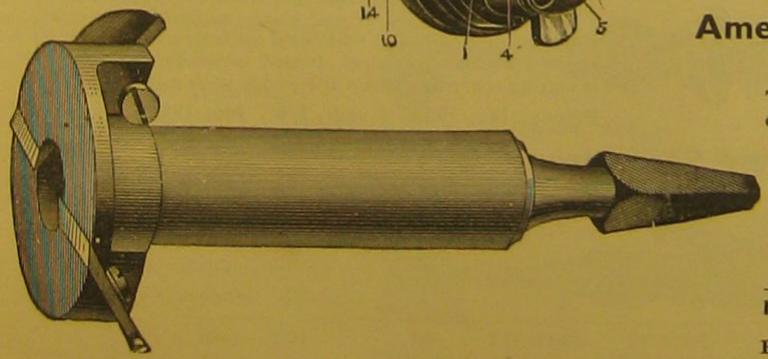


Cushman's Improved "Universal" Hollow Auger

(Made in U.S.A.)

The "Universal" Hollow Auger is a tool required by every wheelmaker; with one Auger all sizes of tenons, from ⅜ to 1½ inches, can be made. It is warranted to give satisfaction, is very light, and with proper usage will last a lifetime. Any part can be replaced if broken, as it is all made to a gauge.

Price ... ... 39/– each
Extra Cutters ... ... 3/9 per pair



Ames' Improved Hollow Auger

(Made in U.S.A.)

This illustration shows an Improved Non-expanding Hollow Auger.

Prices (including Cook's Bits)

⅜	7/16	½	9/16	⅝	¾	ins. per doz.
75/–	**75/–**	**75/–**	**87/–**	**87/–**	**93/9**	

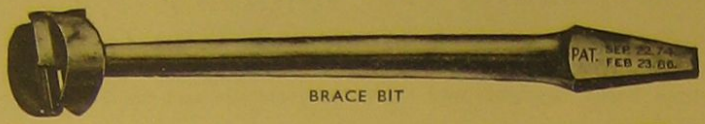
⅞	1	1⅛	1¼	1⅜	1½	ins. per doz.
112/6	**118/6**	**138/–**	**150/–**	**169/–**	**175/6**	

Extra Cutters ... ... 3/9 per pair.

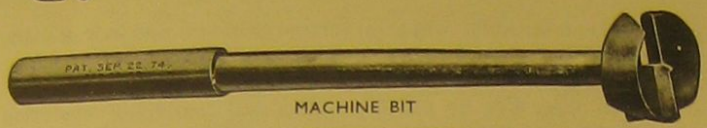
AUGER BITS, COUNTERSINKS, Etc.

Forstner Auger Bits (Made in U.S.A.)

For Smooth, Round, Oval, or Square Boring, Scroll and Twist Work.



BRACE BIT



MACHINE BIT

The "Forstner" Labour-saving Auger Bit, unlike other bits, is guided by its circular rim instead of its centre; consequently it will bore any arc of a circle, and can be guided in any direction regardless of grain or knots, leaving a true polished surface. It is preferable and more expeditious than chisel, gouge, scroll-saw, or lathe tool combined, for core-boxes, fine and delicate patterns, veneers, screen work, scalloping, fancy scroll-twist columns, newels, ribbon moulding and mortising, etc.

Sizes ...	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	in.
Brace Bit ...	4/2	4/2	4/7	4/7	4/10	5/3	5/3	5/8	6/1	6/6	6/6	7/11	7/11	each
Machine Bit	5/-	5/-	5/5	5/5	5/10	6/3	6/3	6/6	6/11	7/4	7/4	8/9	8/9	,,

Sizes ...	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4	1 7/8	2	ins.
Brace Bit ...	8/4	8/4	9/-	10/3	10/3	10/10	12/1	13/9	—	—	—	—	each
Machine Bit	9/2	9/2	9/10	11/1	11/1	11/8	13/2	14/10	15/3	16/3	17/6	18/7	,,

NOTE.—The 1/4 and 5/16 inch sizes are made with spiral or fluted stem for chip clearance instead of straight stem.

All sizes of Machine Bits have 1/2 inch diameter shanks.

Forstner Bits in Sets

At Special Prices

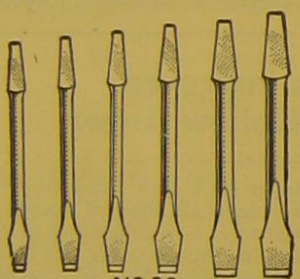
All Sets of 9, 11, and 17 "Forstner" Auger Bits are packed in neat compact boxes, and attention is called to the reduced prices for complete sets, making it advantageous to buy the bits in full sets.

Set of	6 Brace Bits, 3/8, 1/2, 5/8, 3/4, 7/8 1	£1 12 3
,, ,,	6 Machine Bits, sizes as above	1 19 6
,, ,,	9 Brace Bits, 3/8 to 1 3/8, in 8ths	2 18 3
,, ,,	9 Machine Bits as above	3 6 9
,, ,,	11 Brace Bits, 3/8 to 1, in 16ths	3 2 6
,, ,,	11 Machine Bits as above	3 10 9
,, ,,	17 Brace Bits, 1/4 to 1 3/8, in 16ths	5 8 3
,, ,,	17 Machine Bits as above	6 0 9

in case, ,,

Sets of 17 do not contain 1 3/16 and 1 5/16 inch sizes.

Stanley Screw Driver Bits (Made in U.S.A.) No. 26



Forged from crucible steel, oil tempered and polished. Made in six sizes, 4 1/2 ins. long × 1/4 in. tip, 4 3/4 ins. × 5/16 ins., and 5 inches long by 3/8, 1/2, 5/8, and 3/4 inch tips.

Sizes ...	1/4	5/16	3/8	ins.
Prices	10/3	10/9	11/-	per doz.
Sizes ...	1/2	5/8	3/4	in.
Prices	11/6	12/9	15/-	per doz.
Assorted			11/-	per doz.

Stanley Dowel Sharpener No. 22

These tools are of malleable iron. The cutting edge can be readily resharpened.

Price ... **2/- each**

Starrett Double-Lip Countersink, No. 195 (Made in U.S.A.)

This is a double-lip self-centring wood countersink and has a keen cutting edge. It will clear itself of its shavings in any kind of wood, and will cut a smooth, round hole. It is made from the best steel, forged, twisted, and tempered. It can be sharpened from the inside with a file.

Prices, No. 195A, 5/8-inch, 3/6; No. 195B, 7/8-inch, 3/9

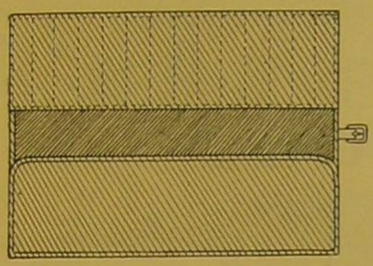
COMET Screwdriver Bits

Best Sheffield made. Nicely shaped. Bright finish.

Sizes	1/4	5/16	3/8	1/2	5/8	inches
Prices	**7d.**	**7d.**	**8d.**	**8d.**	**10d.**	each

TOOL BAGS, CHALK LINES, SHAVE HOOKS, ETC.

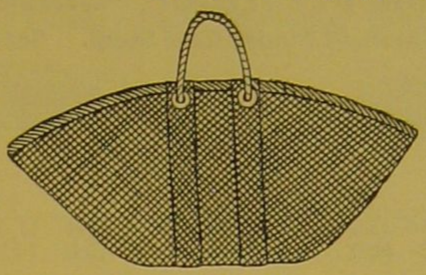
COMET Canvas Rolls for Bits (British Made)



These neat, well made, good quality Canvas Rolls are supplied for holding 13 Bits in sizes ranging from ¼ to 1 inch. Bits rest on a good quality green baize and the roll when closed is held by a leather strap.

Price, 2/6 each

COMET Joiners' Tool Bags (British Made)



Pattern No. 200

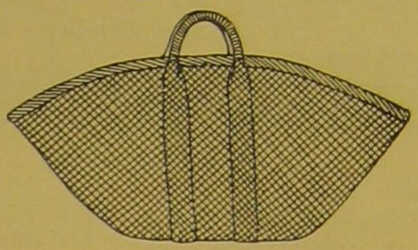
Standard sizes, made from heavy brown and white tarpaulin, fitted with inside pocket. Well made bags.

No.	2	3	4	5	6	
Size	27	30	33	36	39	ins.
Price	**2/9**	**3/1**	**3/9**	**4/6**	**5/3**	**each**

Fitted with 4 Brass Eyelets **3/6 doz.** **Bags extra**

" " 8 Brass Eyelets **6/9 doz.** **Bags extra**

" " 2 Extra Strong Leather Straps and Buckles **10/– doz.** **Bags extra**



Pattern No. 230

Made of the same strong material as No. 200, but without handles. Supplied with 4 brass eyelets and a length of sashcord.

No.	2	3	4	5	6	
Size	27	30	33	36	39	ins.
Price	**2/9**	**3/1**	**3/9**	**4/6**	**5/3**	**each**

Any of the sizes of "Comet" Tool Bags can be supplied with handle rope continued all round the bag.

Price 7/6 per dozen bags extra.

Carpenters' and Joiners' Pencils

COMET (Foreign)

Price ... 12/– per gross

Staedtler's (Foreign)

Price ... 11/6 per gross

COMET All Bright Masons' Line Pins (British Made)

Price 1/– per pair

"Snail Brand" Masons' Line Pin, No. 521 (British Made)

Solid Cast Steel.

All Bright 8/6 per doz. Half Bright 8/– per doz.

Peacocks' Chalk Lines (British Made)

Bricklayers' Lines, 50ft.	**3/–**	**p. doz.**
Boilermakers'	**,,**	**,,**	**4/2**	**,,**
Platers'	**,,**	**,,**	**4/2**	**,,**
Carpenters'	**,,**	**,,**	**4/2**	**,,**

Chalk Line Reels (British Made)

Beechwood

Price... 6/– per doz.

Italian Hemp

Masons & Brick Lines

(British Made)

No. 608 Medium

2oz. Balls	4oz. Balls.	Knots
7/6	**15/–**	**2/3 doz.**

No. 908 Heavy

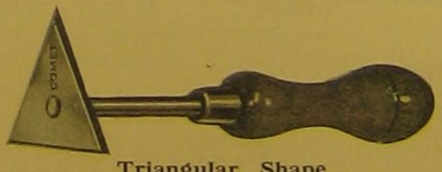
2 oz. Balls	4oz. Balls.	Knots
7/6	**15/–**	**2/9 doz.**

Cotton Chalk Lines.

2oz. Balls.	4 oz. Balls.	Knots
7/–	**14/–**	**2/– doz.**

Heart Shape

Price ... ... 10/6 per dozen



Triangular Shape

Price ... ... 10/6 per dozen

COMET Shave Hooks (British Made)

with Polished Beech Handles and Tang through Handle

Combination Heart and Triangular Shapes

Price ... ... 12/– per dozen

CHISELS

COMET Firmer Chisels

Best Quality. Sheffield Made, Cast Steel. Set Ready for use

	BOXWOOD CARVER HANDLES							ROUND ASH HANDLES				
Size	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1⅛	1¼	1½ ins.
Price, Boxwood Handles ...	12/6	12/10	13/2	13/11	14/3	15/–	15/9	17/7	19/–	22/–	23/5	27/1 per doz.
,, Ash Handles	9/11	10/3	10/7	11/4	11/9	12/6	13/2	14/8	16/1	18/8	20/2	24/2 ,,

COMET Unhandled Firmer Chisels

Size	¼	5/16	⅜	7/16	½	⅝	¾	ins.
Price	6/3	6/7	7/–	7/9	8/1	8/10	9/6	per doz.
Size	⅞	1	1⅛	1¼	1⅜	1½		ins.
Price	11/–	12/6	14/8	16/1	17/7	19/9		per doz.

COMET Bevelled Edge Chisels

Best Quality. Sheffield Made, Cast Steel. Set Ready for use

	BOXWOOD CARVER HANDLES								ROUND ASH HANDLES				
Size	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1⅛	1¼	1⅜	1½ ins.
Price, Boxwood Handles	18/4	18/8	19/–	19/9	20/2	20/10	21/7	23/5	24/11	30/9	32/3	33/8	35/10 per doz.
,, Ash Handles ...	15/9	16/2	16/6	17/3	17/7	18/4	19/–	20/6	22/–	27/6	28/11	30/9	33/– ,,

COMET Unhandled Bevelled Edge Chisels

Size	¼	5/16	⅜	7/16	½	⅝	¾	ins.
Price	12/1	12/6	12/10	13/6	13/11	14/8	15/5	per doz.
Size	⅞	1	1⅛	1¼	1⅜	1½		ins.
Price	16/10	18/4	23/5	24/11	26/4	28/6		per doz

COMET Registered Chisels

Double Hooped Ash Handles. Best Quality. Sheffield Made. Set Ready for use

Size	¼	⅜	½	⅝	¾	⅞	1	1¼	1½ ins.
Price	17/7	17/11	18/4	19/5	21/4	23/1	27/6	30/4	34/– per doz.

COMET Long Thin Paring Chisels

Best Quality. Sheffield Made, Cast Steel. Set Ready for use. Box Carver Handles

Size ...	¼	⅜	½	¾	1	1¼ ins.
Price ...	17/7	17/11	19/–	22/4	27/1	34/5 per doz.

COMET Long Thin Paring Bevelled Edge Chisels

Best Quality. Sheffield Made, Cast Steel. Set Ready for Use. Box Carver Handles

Size ...	½	¾	1	1¼ ins.
Price ...	27/10	31/2	35/10	47/7 per doz.

Chisel Handles

Supplied in Assorted Sizes

Price, Boxwood Carver Handles ... ... 6/– per doz.
,, Round Ash Handles ... ... 3/4 ,,

ASH HANDLE

GOUGES, GIMLETS, BRADAWLS

COMET Firmer Gouges

Best Quality Sheffield Made. Cast Steel

BOX CARVER HANDLES

ROUND ASH HANDLES

Size	¼	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1½	ins.
Price, Boxwood Handles	13/11	14/8	15/9	16/6	17/7	19/5	20/11	24/2	26/4	30/9	per doz.
,, Ash Handles	11/5	12/1	13/2	14/–	15/–	16/6	18/–	20/10	23/1	27/10	,,

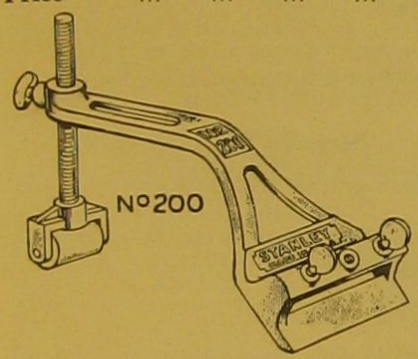
COMET Unhandled Firmer Gouges

Size	¼	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1½	ins.
Price per dozen.	7/9	8/5	9/6	10/3	11/5	12/10	14/3	16/10	19/–	23/5	

COMET Firmer Gouges. Inside Canelled

Best Sheffield Made. Ash Handles

Size	¼	⅜	½	⅝	¾	⅞	1	ins.
Price	11/9	12/6	13/7	14/3	15/5	16/6	18/4	per doz.



Stanley Chisel Grinding Rest No. 200 (Made in U.S.A.)

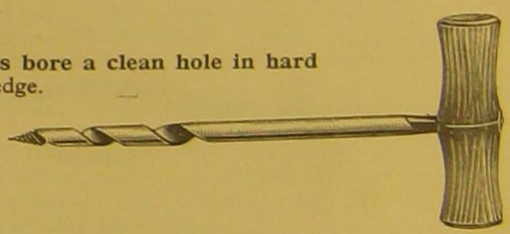
This tool is for holding plane irons, chisels, etc., that they may be ground or honed to any desired angle or bevel.

The iron is held rigidly by thumb screws and adjusted to the desired angle by means of the roller screw. The holder is fitted with two thumb screws and three holes enabling the tool to be held much more firmly than by a single screw.

By turning the roller at an angle to the main body, the user will be able to obtain the slanting stroke so commonly used when tools are sharpened without a holder. The sharpener is made entirely of metal, all parts being nickel-plated.

Price ... ... **7/9 each**

COMET Gimlets



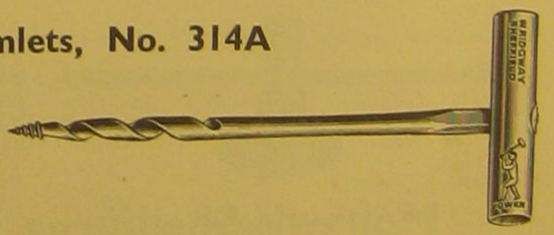
Best Sheffield Made. Boxwood handles. Fine quality. **These Gimlets bore a clean hole in hard wood,** and will not split thin wood, when a hole has to be bored near the edge.

Sizes and Prices

Size ...	3/32	1/8	5/32	3/16	7/32	¼	9/32	ins.
Bore No. ...	1	2	3	4	5	6	7	
Price ...	**4/6**	**4/6**	**5/–**	**5/6**	**6/–**	**6/6**	**7/–**	**per doz.**

Also supplied assorted up to ¼ inch. **5/6** dozen.

Ridgway "Power" All Steel Gimlets, No. 314A



These Gimlets bore a clean hole in hard wood, and will not split thin wood when a hole has to be bored near the edge.

The square tang of the blade is forced into a square hole in the solid steel handle, giving an absolutely firm fit.

Sizes and Prices

Bore ...	3/32	1/8	5/32	3/16	7/32	¼	9/32	assd. ins.
Size No.	1	2	3	4	5	6	7	1–7
Price ...	**37/6**	**39/3**	**44/3**	**49/–**	**53/3**	**58/9**	**63/–**	**47/– p. gross**

Supplied assorted in boxes of 1 dozen ...**Price 4/– box**

COMET Bradawls

Best Sheffield Made. Finest Hand Forged Blades. Beechwood Handles

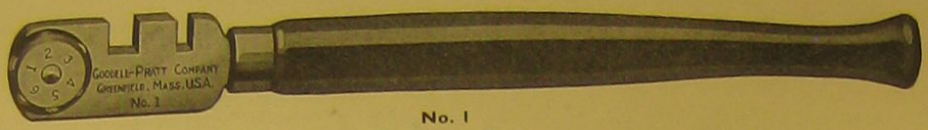
Sizes and Prices

Size, length of blade	1—1¼	1⅜—1½	1⅝—1¾	1¾—2¼	ins.
Price	**4/–**	**4/6**	**5/–**	**5/6**	**per doz.**

Assorted **4/6** dozen.

GLASS CUTTERS

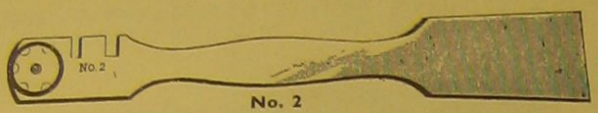
Millers Falls Goodell-Pratt Glass Cutters (Made in U.S.A.)



No. 1

No. 1

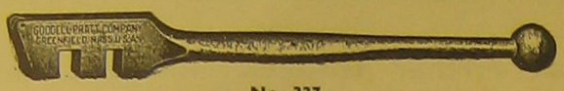
Turret Holder with six cutters, polished and nickeled frame and ferrule, rosewood finish handle. **Price 20/– p. doz.**
Extra Cutter Wheels 2/6 ,,



No. 2

No. 2

Turret Holder with six honed and tested cutters. This tool is a **combination glass cutter and putty knife,** which are polished, the handle being finished red enamel.
Price ... ... 25/6 per doz.
Extra Cutter Wheels ... ... 2/6 ,,



No. 337

No. 337

Polished head, one cutter, red enamelled iron handle.
Price ... ... 10/3 per doz.

No. 400

No. 400

Turret Holder with six cutters. Twelve wheels are furnished, six in the turret, and six in the reserve magazine. Wheels honed and tested.
A steel ball for glass breaking is attached to the handle.
Price ... 36/– per doz. Extra Cutter Wheels ... 2/6 per doz.

No. 979

For cutting special grades and fine quality glass.

No. 979

The wheels in this Cutter are made from special alloy steel, hardened and tempered with the greatest care and ground and honed at the angle that exhaustive research has proved most efficient for the purpose.

Each wheel is actually tested on glass before being installed in the frame.

Not recommended for cutting ordinary glass. **Price ... 10/3 per doz.**

Glass Tube Cutter, No. 218

No. 218

This Cutter is provided with a graduated steel beam, 6½ ins. long, with a gauge stop that can be set at any desired point.
The cutter wheel is honed and tested; and as it can be easily replaced as it becomes dull, the tool will always be in a serviceable condition. The beams of this tool are nickel-plated and the handles finished in red and black enamel. Length, 12½ ins. **Price ... ... 7/6 each**

Circular Glass Cutter, No. 478

No. 478

This Glass Cutter has a graduated beam that can be quickly and firmly set to cut circles of any size from 2 to 12 ins. in diameter.
Each one is provided with one high-grade cutter wheel. Each wheel is honed twice, and tested by actually cutting glass before being mounted in the tool. New wheels easily installed.
The standard has a rubber base to prevent slipping.
Price ... ... 5/6 each

Mohawk-Shelburne Glass Cutter No. 1900 (Made in U.S.A.)

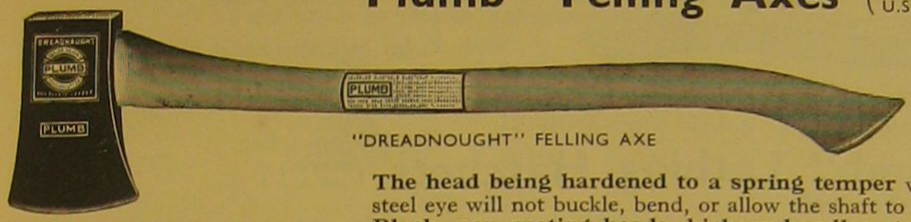
A single wheel Cutter; wheel is of a selected steel, heat treated and honed to a keen edge. Comfortable shaped handle, nickel-plated. Length, 5 inches.
Price, per doz. carded 6/– ... Price, per doz. not carded 5/8

COMET Six Wheel Glass Cutters (Foreign)

With Turret Head containing six fine cutting wheels. Head is nickel-plated and handle finished polished mahogany. **Price ... 1/- each**

FELLING AND HUNTERS' AXES

"Plumb" Felling Axes (Made in U.S.A.)



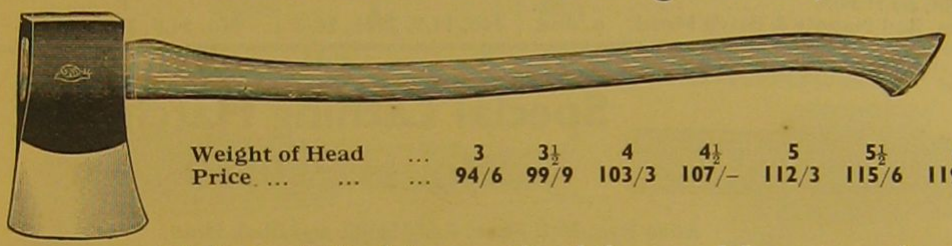
"DREADNOUGHT" FELLING AXE

Made from one solid piece of toughened steel, carefully ground throughout. Bit is tempered to a depth of 2 inches and remains hard after repeated grinding.

The head being hardened to a spring temper will not become battered, the tough steel eye will not buckle, bend, or allow the shaft to work loose.
Black, non-rusting heads, hickory handles stained red, and screw wedges.

Weight, Head only ... ... lbs.	3½	4	4½	5	5½	6	6½	7
Size of Cutting Edge ... ... ins.	4½	4⅞	5⅛	5½	5⅝	5¾	5⅞	6
Length of Handle ... ... ,,	32	32	36	36	—	—	—	—
"Dreadnought" (Best Quality) ... ... per doz.	**100/-**	**104/9**	**109/3**	**114/-**	**118/6**	**123/-**	**132/3**	**141/6**

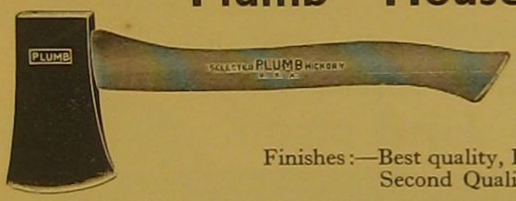
"Snail Brand" Felling Axes, No. 930H (British Made)



Canadian pattern, with hickory handle and solid cast-steel head.

Weight of Head ...	**3**	**3½**	**4**	**4½**	**5**	**5½**	**6**	**6½**	**7** lbs.
Price	**94/6**	**99/9**	**103/3**	**107/-**	**112/3**	**115/6**	**119/-**	**126/-**	**133/3** per doz.

"Plumb" Household or Hunters' Axes (Made in U.S.A.)



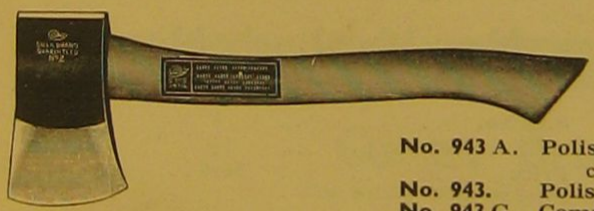
These Axes, designed for general use, are made by the same process and of the high quality steel as the felling axes listed above. The hickory handles are tightly wedged fast to the head and cannot become loose.

Finishes:—Best quality, H.F. Series, with black non-rusting heads, red handles, and screw wedges. Second Quality, P.T. Series, are black painted bodies and white handles.

Sizes and Prices

Weight, without Handle ... ... lbs.	1¼	1¾	2
Width of Cutting Edge ... ... ins.	3⅛	3½	3¾
Prices, Red Handle and Black Head per doz.	**No. H.F. 672—61/6**	**No. H.F. 674—66/3**	**No. H.F. 675—68/6**
,, 2nd Quality (P.T. Series) ... ,,	**No. P.T. 672—47/-**	**No. P.T. 674—51/9**	**No. P.T. 675—56/3**

"Snail Brand" Hunters' Axes, Nos. 943A, 943, 943G, 951



These superior hatchets are made in three finishes, from hardened and tempered solid cast steel. They embody the latest improvements in cutting shape, balance, etc., and the handles are wedged fast to the heads.

No. 943 A. **Polished bright and japanned head,** best white hickory handle, cellulosed.
No. 943. **Polished bright and japanned head,** ash handle.
No. 943 G. **Common finish,** black and bright head, best ash handle.
No. 951. **Oxidised finished head** and oak-stained hickory handle.

Size No.	**1**	**2**	**3**	**4**	
Weight, Head	20	24	28	32	ozs.
Price No. 943 A	**38/6**	**41/-**	**43/9**	**46/6**	**per doz.**
,, No. 943	**32/9**	**36/9**	**40/3**	**44/9**	**,,**
,, No. 943 G	**29/6**	**29/9**	**32/9**	**35/6**	**,,**
,, No. 951	**42/9**	**44/9**	**49/-**	**53/-**	**,,**

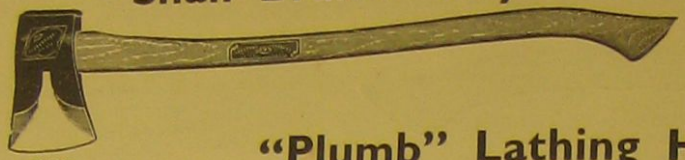
COMET Household or Hunters' Axes (Made in Sweden)

The heads of these fine quality axes are made with a **high grade cast steel welded bit,** which takes and holds a very keen cutting edge. Handles are selected straight grained ash, waxed.

Size, Weight of Head, lbs.	**1¼**	**1½**	**1¾**
Width of Cutting Edge, ins.	3⅛	3½	3¾
Price, per dozen	**39/-**	**42/-**	**45/-**

AXES & HATCHETS

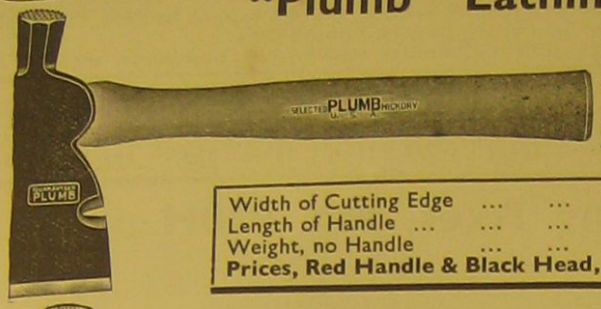
"Snail Brand" Boy Scouts' Axes, No. 929 (British Made)



With 28-in. hickory handle. Weight of Head, 2 lbs.

Price ... ... **56/– per doz.**

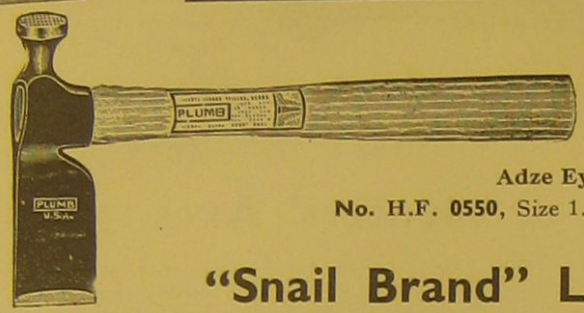
"Plumb" Lathing Hatchets (Made in U.S.A.)



Made from toughened "Plumb" Steel with bit that holds its edge and is tapered for fast cutting. Handles of selected wood.

Finish:—Best quality, with black non-rusting heads, red handles, and screw wedges.

Width of Cutting Edge ... ... ins.	2¼	2½
Length of Handle ... ... ,,	12	13
Weight, no Handle ... ... lbs.	⅞	1
Prices, Red Handle & Black Head, p. doz.	**No. H.F. 2981, 56/3**	**No. H.F. 2982, 61/6**

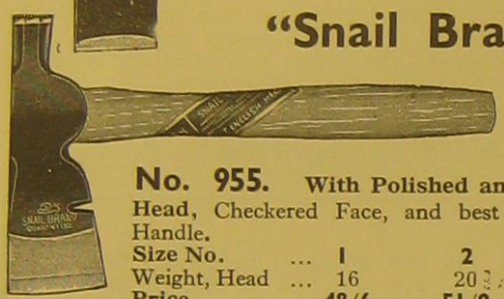


Special Lathing Hatchet No. H.F. 0550

Adze Eye, Bell Face, Red Handle and Black Head.

No. H.F. 0550, Size 1. Weight, 12 ozs. ... ... **102/6 per doz.**

"Snail Brand" Lathing Hatchets (British Made)



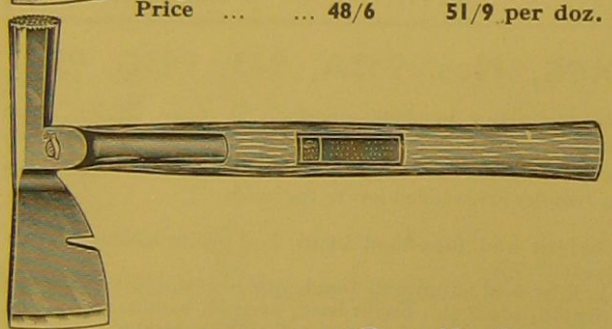
No. 955. **With Polished and Black Head,** Checkered Face, and best Hickory Handle.

Size No. ...	**1**	**2**
Weight, Head ...	16	20 ozs.
Price	**48/6**	**51/9 per doz.**

No. 959. **Adze Eye and Checkered Face. Bright and Black Head,** and cellulosed Hickory Handle.

Size No. 1. Weight of Head, 12 ozs.

Price, 52/6 per doz.



No. 30. Lath Hammer

All Steel Head.

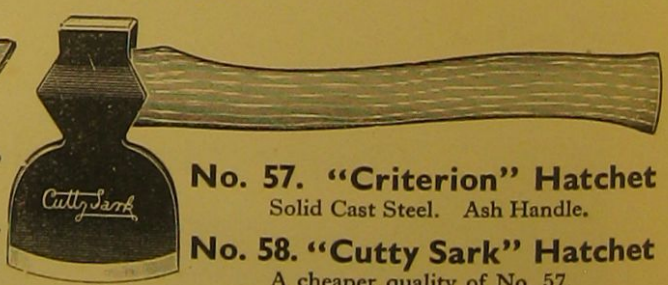
Size No.	**1**	**2**
Weight, Head	1¼	1½ lbs.
Price	**56/8**	**60/– per doz.**

"Snail Brand" Hatchets (British Made)

No. 3 X. **Bright and Black Head,** Ash Handle.

No. 2 X. **Black Head,** Ash Handle.

Size No. ...	**1**	**2**	**3**
Weight, Head	1½	1¾	2 lbs.
Price, No. 3 X	**40/9**	**42/6**	**50/6 per doz.**
,, No. 2 X	**36/–**	**37/9**	**43/9 ,,**



No. 57. "Criterion" Hatchet

Solid Cast Steel. Ash Handle.

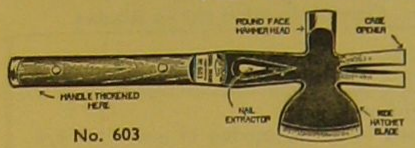
No. 58. "Cutty Sark" Hatchet

A cheaper quality of No. 57.

Size No. ...	**1**	**2**	**3**
Weight, Head	1½	1¾	2 lbs.
Price, No. 57	**30/9**	**33/6**	**37/6 per doz.**
,, No. 58	**25/6**	**27/3**	**31/6 ,,**

"Snail Brand" Handy Tools (British Made)

Four tools in one—a hammer, hatchet, nail extractor, and case opener



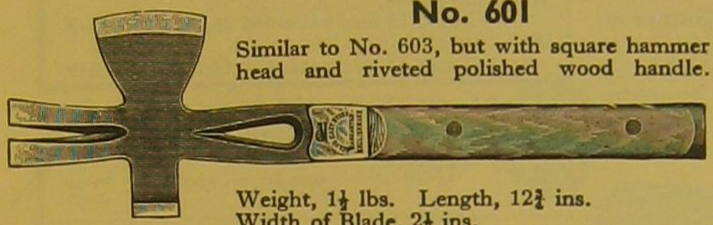
No. 603

No. 603

With round hammer head, well-riveted polished wood handle. Weight, 1¾ lbs. Length, 12¾ ins. Width of Blade, 2⅜ ins.

Price ... ... **4/– each**

No. 601



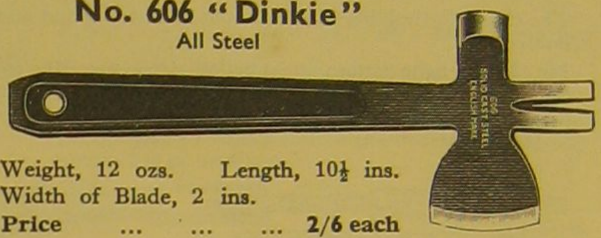
Similar to No. 603, but with square hammer head and riveted polished wood handle.

Weight, 1½ lbs. Length, 12¾ ins. Width of Blade, 2⅛ ins.

Price ... ... **3/6 each**

No. 606 "Dinkie"

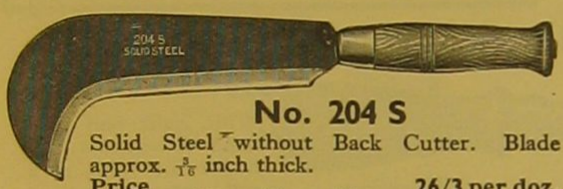
All Steel



Weight, 12 ozs. Length, 10½ ins. Width of Blade, 2 ins.

Price ... ... **2/6 each**

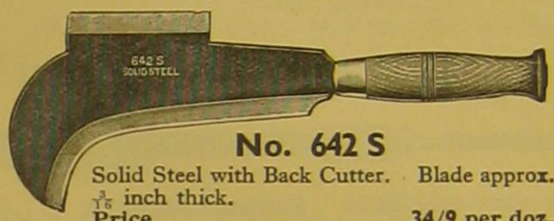
"Snail Brand" Billhooks (British Made)



No. 204 S

Solid Steel without Back Cutter. Blade approx. $\frac{3}{16}$ inch thick.

Price ... ... **26/3 per doz.**

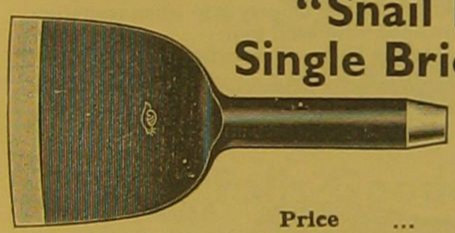


No. 642 S

Solid Steel with Back Cutter. Blade approx. $\frac{3}{16}$ inch thick.

Price ... ... **34/9 per doz.**

"Snail Brand" Single Brick Bolster No. 513



4 inches wide.

Price ... ... **28/9 per doz.**

COMET Electricians or Board Lifting Chisels

(Sheffield Made)

Specially designed for cutting and prizing floor boards, etc. Made of high grade steel; size 9 × ⅝ octagon. Blades, 2½ ins. wide. **Price** ... **18/– per doz.**

COMET "Lightning" Pattern Hollow Wall Drills (Sheffield Made)

Special quality steel, fast cutting with good clearance, make a clean hole and will not choke.

Size	8 × ⅜	8 × ½	10 × ⅝	10 × ¾ ins.
Price	**1/6**	**1/7**	**2/1**	**2/4 each**

COMET Brick Chisels (Sheffield Made)

For boring holes in brick, etc., nicely finished. Octagon Steel.

Size	12 × ½	12 × ⅝	15 × ⅝	15 × ¾	18 × ¾	18 × ⅞ ins.
Price	**8/3**	**11/–**	**13/3**	**16/6**	**20/–**	**26/6 per doz.**

"Gilbow" Star or Wall Plugging Drills

Made from special quality steel. These Star Drills are fast cutting, have a good clearance, make a clean hole, and will not choke.

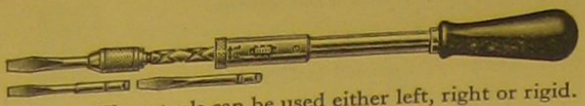
No.	**50 A**	**50 B**	**50 C**	**50 D**	**50 E**	**50 F**	
Size	8 × ⅜	9 × ½	10 × ⅝	10 × ¾	12 × ⅞	12 × 1	ins.
Price	**1/2**	**1/4**	**1/6**	**1/9**	**2/3**	**2/6**	**each**

"Gilbow" Household Star Drill, No. 51

This is a general purpose tool, size 6" × ⅜" and of regular "Gilbow" quality. Each drill supplied on a card. **Price 9d. each**

AUTOMATIC SCREW DRIVERS

COMET Automatic Screw Drivers (Foreign)



These tools can be used either left, right or rigid.

The nuts working in spiral are of **Special Alloy Bronze.**

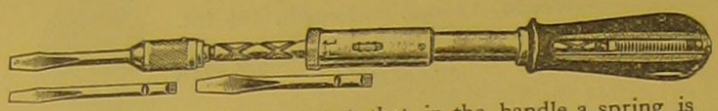
The chuck for holding bits is simple in construction and positive in hold.

No. 35 is a light pattern and smaller. It is specially recommended for electricians, as the bits being straight enable screws to be driven through holes in insulators, etc.

Nos. 30A, 31A and 35

Prices, Complete with three Blades

No.	Length of Tool with Bit in Chuck	Price Each
30A	**Regular:—** Closed 14 ins., extended 19 ins.	9/9
31A	**Large:—** Closed 18 ins., extended 26½ ins.	13/9
35	**Small:—** Closed 11 ins., extended 14 ins.	8/9



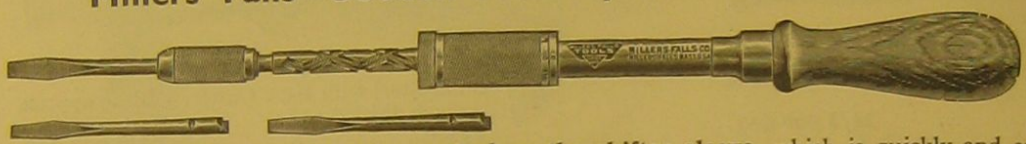
Similar to the range above, except that in the handle a spring is fitted which automatically brings the handle back into position for the next push, when driving screws in or out.

Nos. 130A, 131A and 135

Prices, Complete with three Blades

No.	Length of Tool with Bit in Chuck	Price Each
130A	**Regular:—** Closed 14 ins., extended 19½ ins.	10/9
131A	**Large:—** Closed 19¼ ins., extended 27½ ins.	14/9
135	**Small:—** Closed 11 ins., extended 14 ins.	9/3

Millers Falls—Goodell Pratt Spiral Ratchet Screw Drivers (Made in U.S.A.)

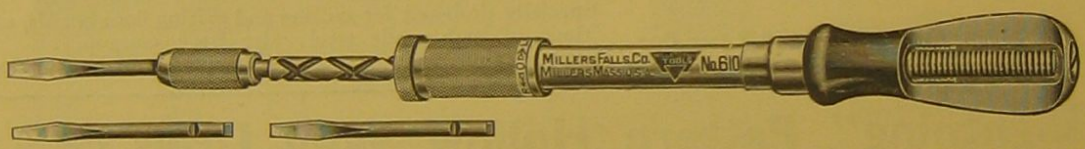


Nos. 61, 62, 67

With right and left-hand movements and device for using as a rigid screw driver.

These several actions are plainly marked on the shifter sleeve, which is quickly and easily operated. The spiral locking device is of new design, positive in action, and especially rigid. Clean-cut knurling affords an easy grip when operating shifter sleeve and locking collar. Three screw driver blades of different sizes are furnished with each tool. Blades are of special analysis steel, individually tested. Handles polished hardwood. **Bronze Nuts. Chromiun plated parts.**

No.	**67**	**61**	**62**	
Length, extended, with bit inserted	12⅝	20½	26¼	ins.
,, closed	9⅜	14¼	17¼	,,
Price	**10/–**	**13/3**	**18/–**	**each**



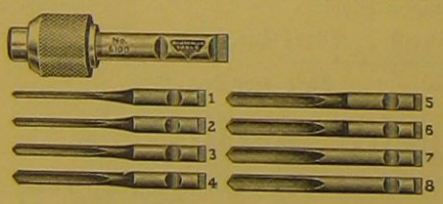
Nos. 610, 620A, 670A

With Automatic Return

Similar to the tools above but with spring in handle which enables the tool to be worked on the principle of an automatic drill. Bronze Nuts, chromium plated parts.

No.	**670A**	**610**	**620 A**	
Length, extended, without bits	11⅜	18 9/16	24 15/16	ins.
,, closed	8⅛	12⅝	16⅛	,,
Price	**11/10**	**15/3**	**20/9**	**each**

Chuck and Drills for Spiral Ratchet Screw Drivers Nos. 6100, 6200 and 6700 (Made in U.S.A.)

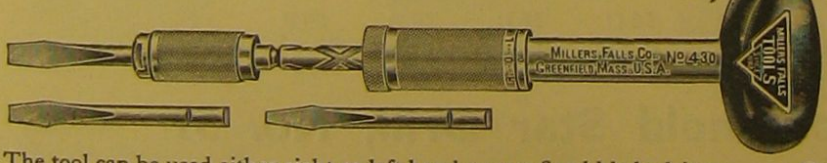


By the use of this chuck and drills a spiral ratchet screw driver is quickly converted into an efficient automatic drill for boring small holes.

Drills can be changed without removing chuck from screw driver. The improved chuck securely grips the drill shanks.

No.	**6700**	**6100**	**6200**	
For use with screw driver, Nos.	67 and 670	61 and 610	62 and 620	
No. of drills and sizes	(3) 1/16-1/32	(8) 1/16-11/64	(8) 1/16-11/64	ins.
Price	**2/3**	**4/2**	**4/2**	**per set**

Cross Handle Screw Driver, No. 430 (Made in U.S.A.)



Has great power and usefully operates in close quarters.

The double spiral runs in chromium plated bronze nut.

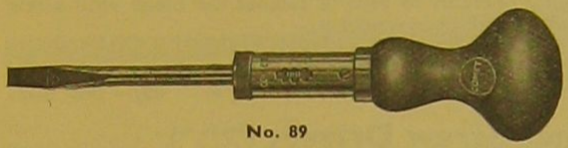
The tool can be used either right or left hand or as a fixed blade driver. Oval handle is lacquered and all exposed parts are chromium plated. **Three sizes of bits are supplied** with each screwdriver. Length, extended, 13⅜ ins.: closed, 8⅞ ins. **Price 13/3 each**

COMET Ratchet Screw Drivers (Foreign)

No. 86

No. 86 **Ratchet Screw Drivers.** Have a **soft rubber covered handle,** which enables the operator to get a much firmer grip on the tool than is obtained on any tool with a wood handle of this shape.
Vanadium steel blades. Finest quality, nicely finished.

Size ...	3	4	5	6 ins.
Price ...	**36/–**	**38/–**	**39/–**	**41/– per doz.**



No. 89

No. 89 Is a **Super Ratchet Screw Driver,** fitted with crutch handle and **chrome vanadium steel blades. Great force can be applied with this type of handle,** and a heavy ferrule is fitted to prevent any possibility of breakage.

Size	$3 \times \frac{1}{4}$	$4 \times \frac{5}{16}$ ins.
Price	**32/–**	**36/– per doz.**

No. 10

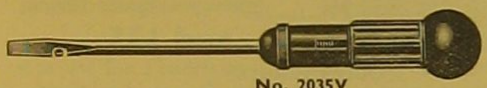
No. 10 **Ratchet Screw Driver,** heavy. Nicely finished. Polished wood handles.

Size ...	3	4	5	6 ins.
Price ...	**18/–**	**19/–**	**20/–**	**21/– per doz.**

No. 15

No. 15 **Ratchet Screw Drivers,** light, fitted with a finger turn on blade. Nicely finished. Polished wood handles.

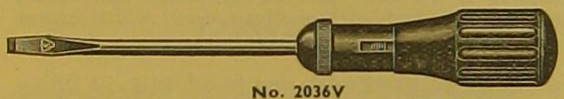
Size ...	2	3	4	5	6 ins.
Price ...	**16/–**	**17/–**	**18/–**	**19/–**	**20/– per doz.**



No. 2035V

No. 2035V and No. 2036V Nicely finished Ratchet Screw Drivers, fitted with **bakelite handles** and **chrome vanadium blades.**
No. 2035V has $\frac{3}{16}$ inch wide blade.
No. 2036V has $\frac{1}{4}$ inch wide blade.

Size	3	4	5	6 ins.
Price No. 2035V ...	**21/–**	**22/–**	**23/–**	**24/– per doz.**
,, No. 2036V ...	**30/–**	**31/–**	**33/–**	**34/– per doz.**



No. 2036V

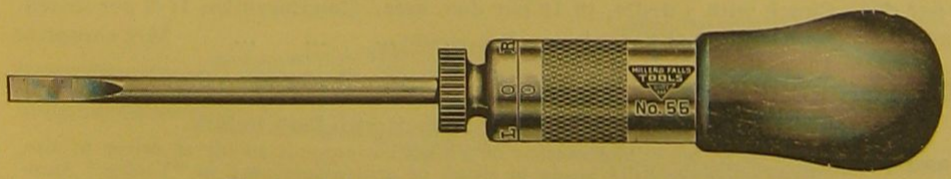
Millers Falls-Goodell Pratt Ratchet Screw Drivers (Made in U.S.A.)

No. 63

This is a compact, strong tool, fitted with a ratchet. It can be used either right or left hand or as an ordinary fixed blade screw driver.

The blade is of highest quality screw driver steel, hardened and tempered.
The handle is of hardwood, conveniently shaped, and has a thumb rest at the lower end.

Length	2	3	4	5	6	8 ins.
Price ...	**2/6**	**2/10**	**3/2**	**3/4**	**3/9**	**4/4 each**

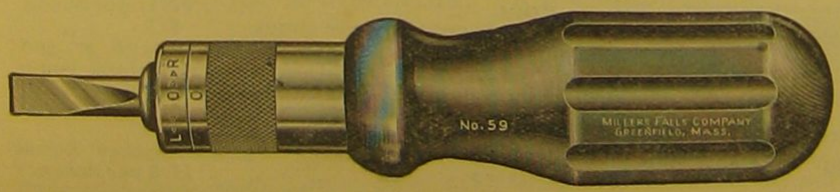


"Radio" No. 55

Particularly adapted to radio and electrical work. Can be used right or left hand or as a fixed blade screw driver.

The knurled collar is part of the blade and provides the ratchet motion.
The blade is of steel $\frac{5}{16}$ inch diameter, hardened and tempered, and the handle is of polished hardwood.

Length of Blade	2	3	4	5	6 ins.
Length overall	5	6	7	8	9 ,,
Price	**2/8**	**2/10**	**3/–**	**3/2**	**3/2 each**



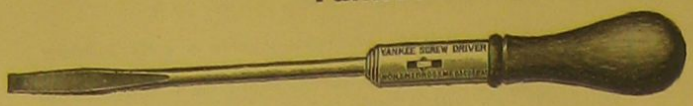
No. 59

This rugged screw driver is very suitable for electricians, gunsmiths, mechanics, etc. Operates right or left hand or fixed blade driver. Length of blade, $1\frac{1}{8}$ ins., Overall, $6\frac{1}{4}$ ins.

Price ... ... 3/4 each

RATCHET SCREW DRIVERS

"Yankee" Ratchet Screw Drivers, No. 10 (Made in U.S.A.)



No. 10

To adjust for right-hand use, push slide towards bit; for left hand, push slide towards handle. When slide is midway between ends of slot, the blade is held rigidily, and can be used as an ordinary fixed screw driver.

Size	2	3	4	5	6	8	10	12	ins.
Price	**31/8**	**39/2**	**41/8**	**45/10**	**51/8**	**58/4**	**70/–**	**77/1**	**per doz.**

No. 15

No. 15—WITH FINGER TURN ON BLADE

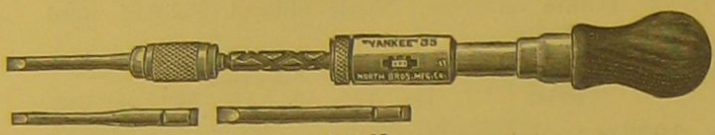
Similar to No. 10, but with knurled washer on blade enabling operator to turn or ratchet the blade until screw is well started.

Size	2	3	4	5	ins.
Price ...	**35/–**	**36/8**	**38/4**	**40/–**	**per doz.**

"Yankee" Reversible Spiral Ratchet Screw Drivers (Made in U.S.A.)

Nos. 30A, 31A, and 35

Nos. 30A and 31A



No. 35

These tools can be used as either left, right, or rigid, as described for No. 10 above.

The nuts working in spiral are of brass.

The chuck for holding bits is simple in construction and positive in hold.

No. 35 is a light pattern, and smaller. It is specially recommended for electricians, as the bits being straight enables screws to be driven through holes in insulators, etc.

No.	Length of tool, with bit in chuck.	per doz.
30A.—Regular,	closed, 13¼ ins.; extended, 18⅝ ins.	**145/10**
31A.—Large,	,, 17 ,, ,, 25½ ,,	**195/10**
35.—Small,	,, 9⅛ ,, ,, 12⅛ ,,	**108/4**

Nos. 130A, 131A, and 135

(Quick Return)

Nos. 130A 131A and 135
(QUICK RETURN)

This Driver is the same as No. 30, except that in the handle a spring is added (see illustration), which causes the handle to come back for the next push in driving screws in or out.

The tool can be used with one hand only, as spring keeps the bit in position, while handle is forced back for next stroke.

No. 131A is the heavy pattern and **No. 135** the light pattern.

No.	Length with bit in chuck.	per doz.
130A.—	Closed, 14⅞ ins.; extended, 20 ins. ...	**166/8**
,, 131A.—	,, 19¼ ,, ,, 27½ ,, ...	**225/–**
,, 135.—	,, 10⅜ ,, ,, 13½ ,, ...	**129/2**

"Yankee" Spiral Ratchet Screw Drivers, No. 33-H

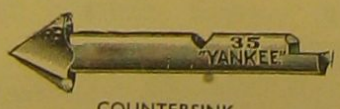
This tool, whilst of the regular Yankee quality is of simplified construction and is offered at a low price.

No. 33H. Price with one blade ... ... **48/4 per dozen.**
Extra Blades, 5/32″ or ¼″, 5/10 per doz.; Chuck with 3 drills, 18/10 per doz. sets. Countersinks, 11/8 per dozen.
An attractive Counter Display containing Six, No. 33H Screwdrivers for ... ... **24/2 complete**

Attachments for "Yankee" Spiral Screw Driver

HALF ACTUAL SIZE
DRILL POINTS

SHOWING CHUCK WITH DRILL POINT INSERTED



COUNTERSINK

Chuck with Drill Points

The outside of Chuck corresponds to bit of driver in size, the inside to shank of drill points used in "Yankee" Automatic Drills. The drill point is first put in chuck, as in illustration, and the two together put in chuck of Spiral driver the same as ordinary bit.

Light Type Screw Drivers Nos. 25, 35, 125 and 135, have three Drill Points, 1/16 to 3/32 inch, furnished with Chuck.
Price ... ... **22/11 per dozen.**
Drill Points only, without chuck **5/3** **,,**

Standard and Heavy Screw Drivers Nos. 26, 27, 30A, 31A, 126, 127, 130A, and 131A, have eight Drill Points, 1/16 to 11/64 inch, furnished with Chuck.
Price ... ... **45/10 per dozen.**

Countersinks
For all numbers "Yankee" Spiral Ratchet Screw Drivers ... ... **11/8 per dozen.**

Extra Screw Driver Bits
For all sizes, Price, 10/– per dozen. Set of 3, 2/6

PLAIN SCREW DRIVERS

COMET London Pattern Screw Drivers (British Made)

Finest Quality. Warranted Sheffield Made. With Beech Handles and Cast Brass Ferrules.

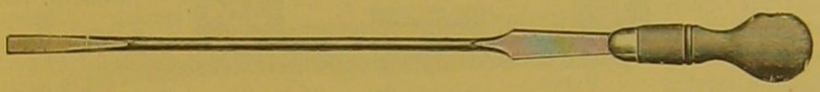
Size	3	4	5	6	8	10	ins.
Width of blade	3/32	5/16	11/32	13/32	7/16	1/2	
Price	**10/6**	**12/9**	**13/9**	**16/9**	**23/3**	**31/6**	**per doz.**

COMET Cabinet Pattern Screw Drivers (British Made)

Finest Quality. Warranted Sheffield Made. With Beech or Boxwood Handles.

Size	2	3	4	5	6	7	8	9	10	12	ins.
Width of blade	3/16	1/4	1/4	5/16	11/32	13/32	7/16	1/2	1/2	1/2	in.
Price, Beech Handles ...	**8/6**	**8/6**	**9/6**	**12/9**	**13/9**	**16/9**	**18/–**	**23/3**	**24/3**	**29/6**	**per doz.**
,, Boxwood Handles	**9/6**	**9/6**	**11/9**	**13/9**	**16/9**	**19/–**	**21/–**	**25/3**	**29/6**	—	,,

COMET Electricians' Cabinet Pattern Screw Drivers



Finest quality. Sheffield made. Boxwood Handles.

Size ...	3	4	5	6	8	ins.
Width of blade	5/32	5/32	3/16	3/16	7/32	,,
Price ...	**10/–**	**12/–**	**15/–**	**18/–**		**per doz.**

COMET Octagon Screw Drivers (Sheffield Made)

Special for Electricians. Best quality with Brass Ferrules.

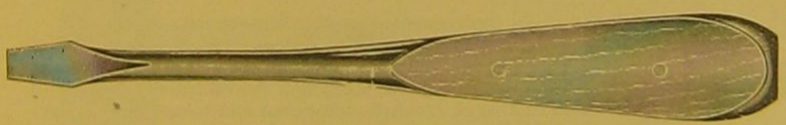
Size	3	4	5	6	8	ins.
Width of Blade	5/32	3/16	3/16	3/16	7/32	in.
Price, Walnut Handles	**10/6**	**11/9**	**12/9**	**13/9**	**16/9**	**per doz.**
,, Boxwood Handles	**11/9**	**12/9**	**13/9**	**14/9**	**19/–**	,,

COMET Electricians' Solid Screw Drivers, No. 2116 (Foreign)

Fitted with loose tube on the blade. Tube remains stationary when driver is turned. **Fully Insulated.**

Size	3 × 3/16	4 × 3/16	5 × 7/32	6 × 7/32	ins.
Price	**14/–**	**15/–**	**16/–**	**17/–**	**per doz.**

COMET "Perfect Handle" Pattern Screw Drivers (Foreign)



The forged steel blade extends the whole length of the driver ensuring maximum strength. Rivets are of brass.

Size, length overall	6	8	10	12	ins.
Width of blade	1/4	11/32	3/8	7/16	in.
Price ...	**8/–**	**9/–**	**13/–**	**16/–**	**per doz.**

Millers Falls—Goodell Pratt Screw Drivers (Made in U.S.A.)

No. 367. Machinists

These are powerful screw drivers with square heavy duty blades of heat-treated alloy steel.

The 3/8-in. square shank permits the use of a wrench when unusual power is needed. The handle is a little larger than ordinary and is made of hard-wood, protected by a heavy steel ferrule.

Length of Blade	**2**	**3**	**4**	**6**	**ins.**
Length overall	8	9	10	12	,,
Price	**30/–**	**32/6**	**35/–**	**40/–**	**per doz.**

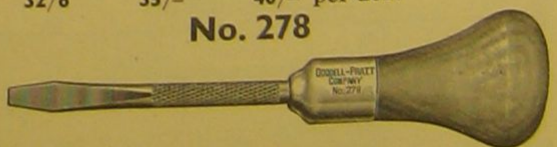
No. 33. Gunsmiths

This tool has a steel blade securely fastened in the hard-wood handle.

Made with 1-in. blade only. Length overall, 4 1/2 ins.

Price ... ... **18/4 per doz.**

No. 278



This is a popular pocket screw driver with knurled finger grip on blade. Blade is 5/32 in. diam., of good steel, tempered. Handle of hardwood, finished red and black lacquer.

Length of Blade	**1 1/8**	**3**	**ins.**
Price	**8/3**	**9/2**	**per doz.**

SCREW DRIVERS, NAIL PULLERS, ETC.

Millers Falls—Goodell Pratt Screw Drivers (Made in U.S.A.)

Stubby Screw Driver, No. 69

This small screw driver is very powerful. Handle is hardwood, fluted grip and has heavy steel ferrule. Blade is $1\frac{1}{2}$ ins. long × $\frac{11}{32}$ in. wide. Overall length of tool is $4\frac{3}{8}$ ins.

Price ... ... **10d. each.**

Pocket Screw Driver, No. 100

This is a very small and handy tool with a tool steel blade measuring only $1\frac{1}{8}$ ins. long by $\frac{1}{4}$ in. diameter. Finish is red and black. Length overall, $3\frac{3}{8}$ ins.

Price, No. 100, mounted on card ... **12/- doz.**

Goodell No. 300 Small Screw Drivers on Card

Two Screw Drivers, one each $1\frac{1}{2}$-in. and $2\frac{1}{2}$-in. blade, are mounted on each card, which measures $3\frac{1}{2} \times 5\frac{1}{2}$ ins.

The Screw Drivers are nicely finished with birch handles and well-made blades.

Finish is red and black lacquer and nickel.

Price, No. 300

5/- per 1 doz. Cards.

Goodell Offset Screw Driver, No. 199

No. 199 GOODELL - PRATT
OFFSET SCREW DRIVER
"Reaches the Hidden Screw"
Four Blades covering 8 different positions of the screw slot make this tool the master of any screw when there is one eighth turn or more to operate in.
MILLERS FALLS COMPANY
Greenfield, Mass, U.S.A.
PRICE
35c

The positions and angles at which the four blades are set enable this screw driver to be used in **eight different positions** of a screw slot.

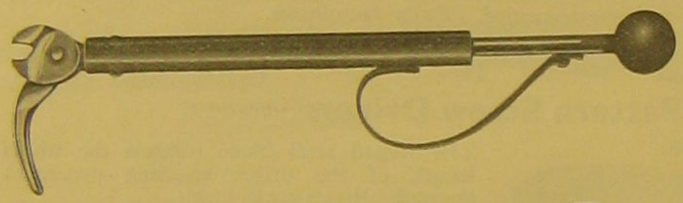
Made from strong alloy steel with heat treated blades. Length overall, $5\frac{1}{8}$ ins.

Price ... ... **1/6 each**

Mohawk-Shelburne Plain Screw Drivers, No. 7777 (Made in U.S.A.)

The blade is of a specially tough grade steel, hammer forged and hardened. **Lugs are forged on the shank,** which is pressed deep into the handle. **The fluted hardwood handle** is shaped to give comfortable grip, and is protected with a heavy steel ferrule.

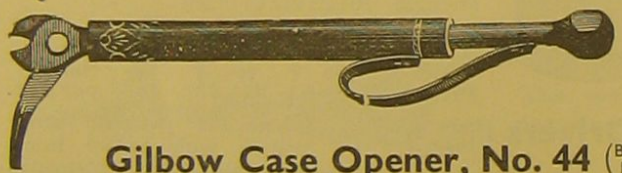
Length of Blade	...	3	4	5	6	8 ins.
Diam. of Shank	...	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$ in.
Price	... ...	**8/4**	**9/6**	**11/-**	**12/-**	**13/6 per doz.**



Comet Nail Puller (Foreign)

This low-priced nail puller of cast steel is suitable for use about the shop or warehouse for opening cases, etc.

Price ... ... **4/6 each**

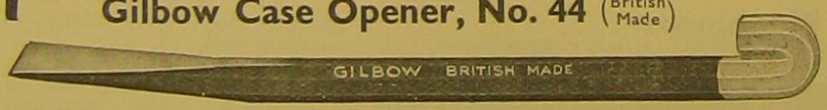


"Victor" Nail Puller (British Made)

All the working parts, including the rammer, are made of best cast steel, carefully tempered and tested before leaving the factory.

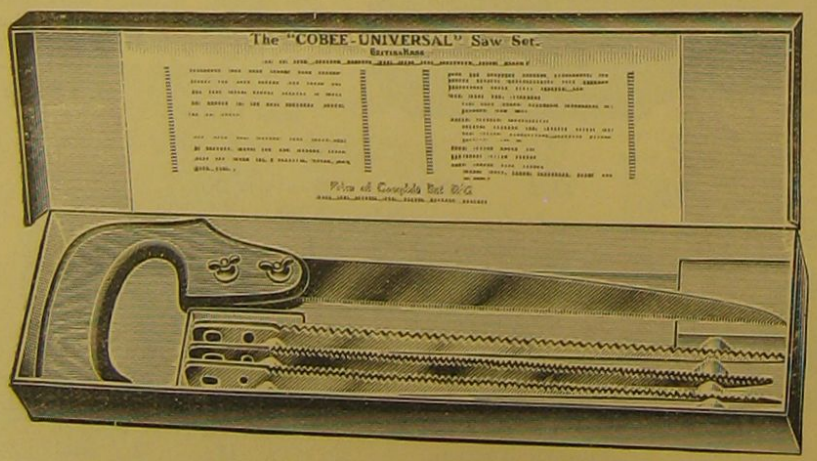
Price ... ... **10/3 each**

Gilbow Case Opener, No. 44 (British Made)



Made of high-grade steel, octagonal in shape, this tool has many uses in lifting, prising, and cutting case and floor boards, etc. Size, $12 \times \frac{5}{8}$ ins.

Price ... ... **1/6 each**



"Cobee-Universal" Set of Saws (British Made)

This set consists of a handle and four separate blades. Straight and curved cuts can be made and the saw operates with ease in confined places.

Dark Blade with Fine Teeth made of 2% tungsten steel, **for cutting iron, steel and all hard metals.**

Dark Blade with Coarse Teeth, made of 2% tungsten steel, **for cutting lead, brass and soft metals, also asbestos, stone, and bone.**

Bright Blade, Light Gauge for cutting ordinary dry wood.

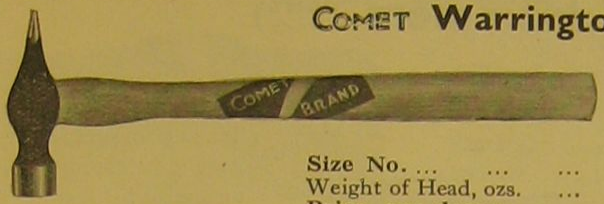
Bright Blade, Heavy Gauge for cutting hardwood and green wood, etc.

Price, Set complete **6/6**

Spare blades can be supplied.

HAMMERS AND PINCERS

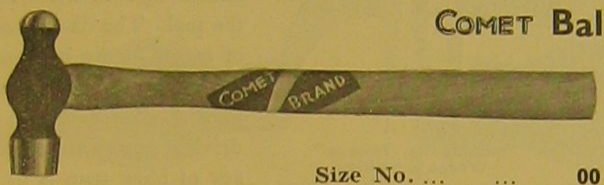
COMET Warrington or Joiners' Hammers (British Made)



Solid Cast Steel Heads. Well balanced and fitted with first quality varnished ash handles.
Black and bright finish.

Size No.	00	0	1	2	3	4	5	6
Weight of Head, ozs.	6	8	10	12	14	16	18	20
Price, per dozen	13/6	13/6	14/3	15/–	16/6	18/–	20/3	23/3

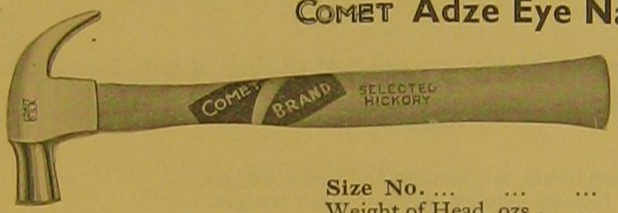
COMET Ball Pein Hammers (British Made)



With forged Cast Steel Heads and first quality ash handles.

Size No.	00	1	2	3	4	5	6	7	8	9
Weight of Head, ozs.	4	8	12	16	20	24	28	32	40	48
Price, per dozen	14/3	14/3	14/8	15/–	17/3	20/–	21/9	24/9	30/–	33/–

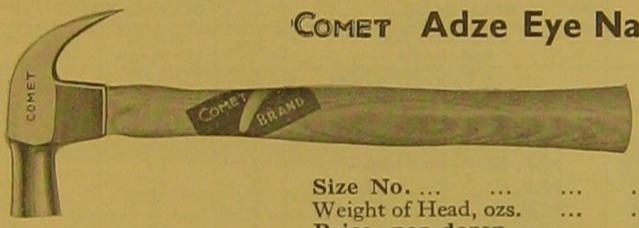
COMET Adze Eye Nail Claw Hammers No 1. (Made in U.S.A.)



Best Solid Cast Steel Heads scientifically tempered, with accurately ground faces.
The hammers are correctly balanced and fitted with selected hickory handles.

Size No.	2	1½	1
Weight of Head, ozs.	13	16	20
Price, per dozen	45/–	48/–	51/–

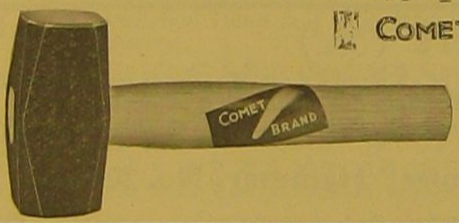
COMET Adze Eye Nail Claw Hammers No. 2 (Foreign)



Heads are highly polished in drop-forged tool steel.
The bevelled edges on the claws will grip and draw headless nails.
The hammers are well balanced and are fitted with polished handles.

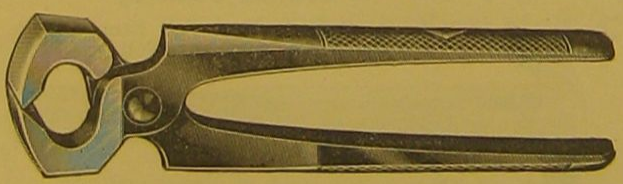
Size No.	1	2	3	4
Weight of Head, ozs.	12	16	20	24
Price, per dozen	36/–	39/–	42/–	45/–

COMET Club or Masons' Hammers (British Made)



Size, weight lbs.	2	2½	3	3½	4
Price, per dozen, Handled	24/6	25/9	27/6	29/–	30/6

COMET Pincers (Foreign)



No. 8430

A square shouldered Pincer, black, with polished head. Head has two flats, so that it can be used for hammering. Chequered handles.

No. 8430 Extra heavy.

Size	6	7 ins.
Price	21/–	24/–

Tower No. 8020S Forged Steel. With Ball and Claw, Black handles, polished head.

No. 8020S. Black.

Size	6	7	8 ins.
Price	12/3	13/9	17/3 per doz.

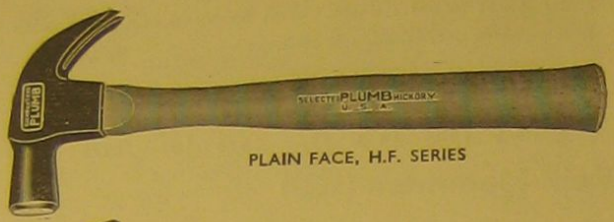
No. 8022P Forged Steel. **Square Shoulders.** With Ball and Claw

No. 8022P. Polished.

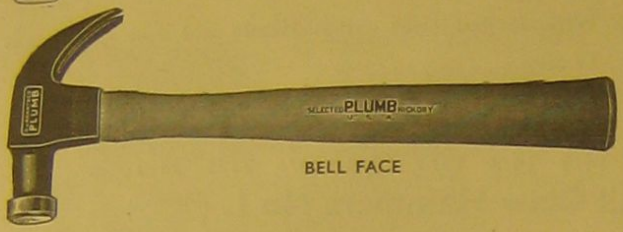
Size	6	7	8 ins.
Price	18/3	22/–	26/6 per doz.

HAMMERS

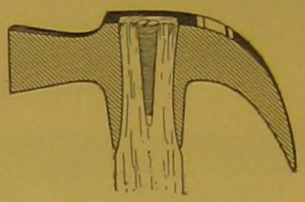
"Plumb" Nail Hammers (Made in U.S.A.)



PLAIN FACE, H.F. SERIES



BELL FACE



Showing the "Take-up" Wedge in position

These Hammers are fitted with the "Plumb" Take-up wedge for keeping the handle tight in the eye of the tool. The distribution of metal in the head and the large full striking face give a greater degree of driving power and accuracy of blow than is usual in hammers of this type.

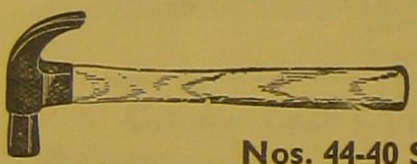
The strong claws have knife-like edges, shaped like nippers, which bite into and hold all kinds of nails, including the headless variety.
The bend of the claws is designed to give greater leverage when drawing nails, so that the nail is out before there is any pull on the hammer head.
Supplied in two finishes:—
Best quality, No. H.F. 70 and No. H.F. 80 Series, having black heads, red handles and screw wedges.
Second quality, No. 129 Series (Quaker City), polished, with hickory handles, without screw wedges.

Sizes and Prices

PLAIN FACE				BELL FACE		BOTH TYPES		
Black Head and Red Handle		2nd Quality (Quaker City)		Black Head and Red Handle		Size	Weight No Handle	Length of Handle
No.	Prices Per Doz.	No.	Prices Per Doz.	No.	Prices Per Doz.	No.	Ozs.	Ins.
H.F. 70	83/-	—	—	—	—	0	28	14
H.F. 71	60/-	129	44/-	H.F. 80	60/-	1	20	14
H.F. 72	56/-	130	42/-	H.F. 81	56/-	1½	16	13
H.F. 73	53/-	131	40/-	H.F. 82	53/-	2	12	13
				H.F. 83	51/-	3	7	—
				H.F. 84	51/-	4	4	—

Stanley Nail Hammers (Made in U.S.A.)

Made from special steel, carefully forged, hardened, and tempered. Handles of all numbers are of selected second growth white hickory. The improved method of fastening the head makes it practically impossible for the head to fly off.
Claws are of uniform thickness, formed to grip and hold fast at any point of the shank all sizes and kinds of nails.

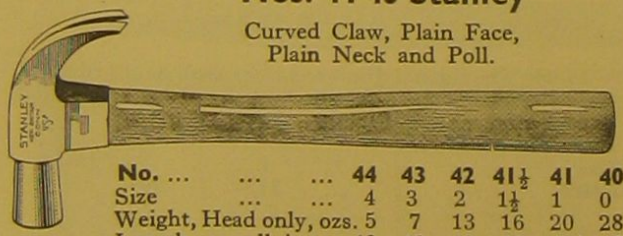


"Hercules" Hammer, No. 201½

This is a well made, strong hammer at an unusually low price
No. 201½. Weight, 16 ozs. Price ... ... 2/- each

Nos. 44-40 Stanley

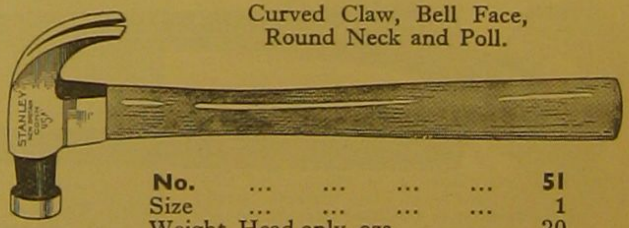
Curved Claw, Plain Face, Plain Neck and Poll.



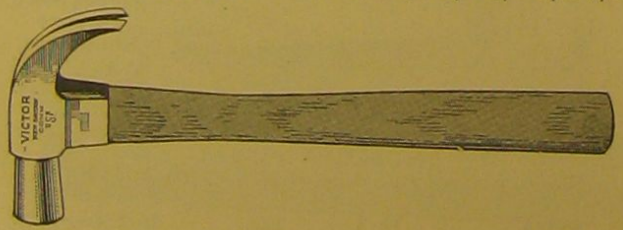
No.	44	43	42	41½	41	40
Size	4	3	2	1½	1	0
Weight, Head only, ozs.	5	7	13	16	20	28
Length, overall, ins.	12	12	13	13	13½	15
Price, each	**4/9**	**4/9**	**5/-**	**5/-**	**5/6**	**7/6**

No. 51 Stanley

Curved Claw, Bell Face, Round Neck and Poll.



No.	**51**
Size	1
Weight, Head only, ozs.	20
Length, overall, ins.	13½
Price, each	**5/6**



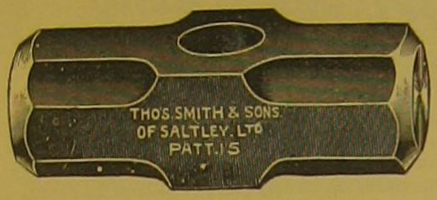
"Victor," Nos. 92-91

Curved, Claw, Plain Face, Plain Head and Poll.

No.	**92**	**91½**	**91**
Size	2	1½	1
Weight, Head only, ozs.	13	16	20
Length, overall, ins.	13	13	13½
Price, each, either style	**3/6**	**3/9**	**3/9**

HAMMERS

"Snail Brand" Hammers (British Made)

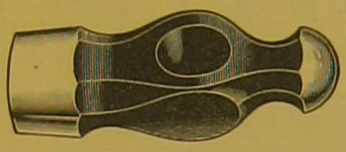


Sledge Hammers, No. 15. Double Faced

Solid Cast Steel

Sizes...	3 lbs.	4 lbs.	5 lbs.	6 lbs. upwards
Prices	61/9	55/–	51/9	46/9 per cwt.

Engineers' Hammers



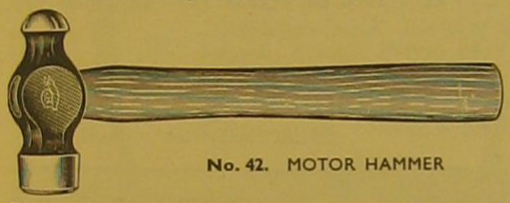
No. 022. BALL PEIN

No. 023. CROSS PEIN

No. 09. STRAIGHT PEIN

Good finish, full polish and warranted. Unhandled.

Nos. 022, 023, and 09 ... ... **1 lb. and under, 10/10 per doz.; 1¼ lb. to 3 lbs., 10d. per lb.**



No. 42. MOTOR HAMMER

Handled Engineers' and Motor Hammers

Sizes	½	¾	1	1¼	1½	1¾	2	lbs.
No. 022H (Ball Pein); No. 023H (Cross Pein); No. 09H (Straight Pein)	14/3	14/8	15/–	17/3	20/–	21/9	24/9	per doz.
No. 42. Motor Hammer with short polished handle ...	—	14/8	15/–	—	—	—	—	,,

Machinists' Hammers

Forged from best quality cast steel, carefully tempered and fully guaranteed. Heads secured by serrated steel wedge.

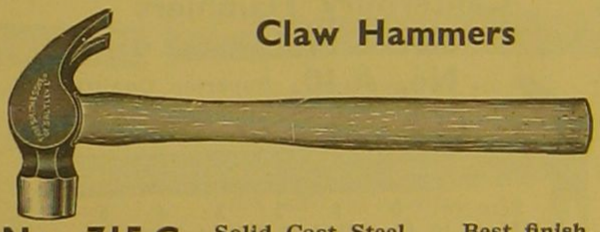
No. 39. Polished Head and best White Hickory Handle.

No. 40. Oxydised finish Head and Oak stained best Hickory Handle.

Size No. ...	00	0	1	2	3	4	
Weight of Head	4	6	8	12	16	20	ozs.
No. 39 ...	29/9	30/9	30/9	30/9	33/9	36/9	per doz.
No. 40 ...	29/9	30/9	30/9	30/9	33/9	36/9	,,

Size No. ...	5	6	7	8	9	
Weight of Head	24	28	32	40	48	ozs.
No. 39	40/–	42/–	45/3	52/6	60/–	per doz.
No. 40	40/–	42/–	45/3	52/6	60/–	,, ,,

Claw Hammers



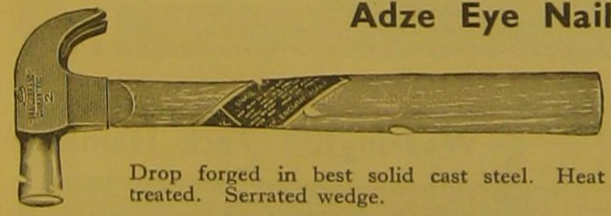
No. 715 C. Solid Cast Steel. Best finish. Polished Ash Handle.

No. 713 C. Common finish or Farmer's Hammer. Polished Ash Handle.

No. 715C Size No. ...	00	0	1	2	3	4	
Weight of Head ...	8	12	14	16	18	26	ozs.
No. 715C Price ...	16/9	17/9	20/3	22/–	25/6	28/3	per doz.

No. 713C Size	½	¾	1	1¼	1½	lbs.
No. 713C Price	16/9	18/9	20/3	23/6	26/6	per doz.

Adze Eye Nail Claw Hammers



Drop forged in best solid cast steel. Heat treated. Serrated wedge.

No. 724 C

Oxydised Head and stained Hickory Handle

Size No.	1	2	3	4	
Weight of Head ...	13	16	20	24	ozs.
No. 724C	50/9	55/–	59/6	63/–	per doz.

No. 726 Hammer

Has bright head and straight pattern polished Hickory handle.

Size No.	1	2	3	4	
Weight of Head ...	13	16	20	24	ozs.
Price	45/9	47/9	53/3	56/–	per doz.

No. 550. With Hickory Handle

No. 550 A. With Ash Handle

Nicely balanced with hardened and tempered cast steel head and correctly shaped knife edged claw. Two serrated wedges secure handle.

Size No. ...	1	2	3	4	
Weight of Head	13	16	20	24	ozs.
No. 550 ...	51/9	53/3	57/6	60/–	per doz.
No. 550 A ...	49/6	50/9	54/9	57/3	,,

"Snail Brand" Hammers (British Made)

Warrington or Joiners' Hammers, No. B3

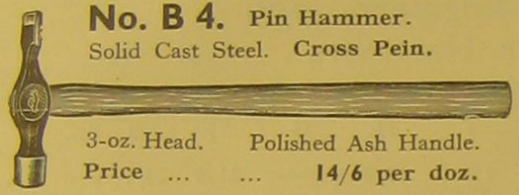
SERRATED WEDGE

These are tools of good design, strength, and balance. The handles are secured by a serrated wedge, illustrated, which does not work loose or fall out.
No. B 3 Hammers are supplied in three finishes—Polished, Oxydised, and Ordinary Black and Bright.

Size No.	0000	000	00	0	1	2	
Weight of Head	2	4	6	8	10	12	ozs.
Price Black and Bright Finish	13/6	13/6	13/6	13/6	14/3	15/–	per doz.
,, All Bright or Oxydised Finishes	17/3	17/3	17/3	17/3	18/–	18/9	,,

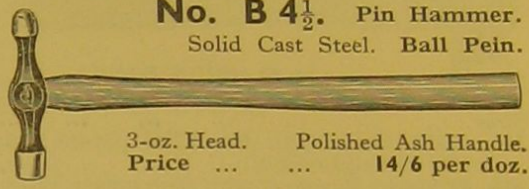
Size No.	3	4	5	6	7	8	
Weight of Head	14	16	18	20	22	25	ozs.
Price. Black and Bright Finish	16/6	18/–	20/3	23/3	28/6	33/9	per doz.
,, All Bright or Oxydised Finishes	21/–	22/6	24/9	27/9	33/–	38/3	per doz.

Pin Hammers



No. B 4. Pin Hammer.
Solid Cast Steel. **Cross Pein.**

3-oz. Head. Polished Ash Handle.
Price ... ... 14/6 per doz.

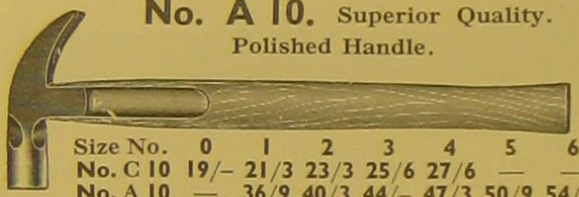


No. B 4½. Pin Hammer.
Solid Cast Steel. **Ball Pein.**

3-oz. Head. Polished Ash Handle.
Price ... ... 14/6 per doz.

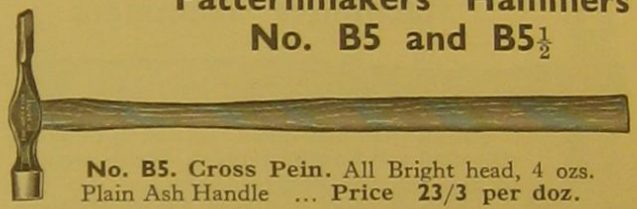
Canterbury Hammers

No. C 10. Common Quality.
No. A 10. Superior Quality.
Polished Handle.



Size No.	0	1	2	3	4	5	6	
No. C 10	19/–	21/3	23/3	25/6	27/6	—	—	p. doz.
No. A 10	—	36/9	40/3	44/–	47/3	50/9	54/–	,,

Patternmakers' Hammers No. B5 and B5½



No. B5. Cross Pein. All Bright head, 4 ozs. Plain Ash Handle ... **Price 23/3 per doz.**

No. B5½. Cross Pein. Self colour.
Price ... ... 15/6 ,,

Tack Hammers

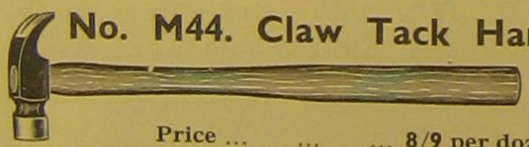
Magnetic Tack Hammers, Nos. 45 and 45 A

These hammers are drop-forged in steel specially made to retain magnetism.
They are particularly useful to upholsterers, coach trimmers, etc. Heads are polished.

Prices

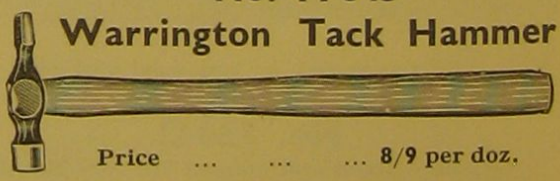
No. 45. With Single Face and Claw, White Hickory Handle ... **5/3 each**
No. 45 A. With Single Face and Claw and English Ash Handle ... **5/– ,,**

No. M44. Claw Tack Hammer



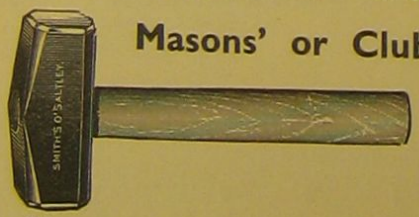
Price ... ... 8/9 per doz.

No. M 843 Warrington Tack Hammer



Price ... ... 8/9 per doz.

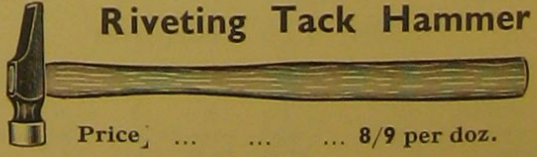
Masons' or Club Hammers



No. 637
Head only.
No. 637 H
Handled.

Size	2	2½	3	3½	4	lbs.
No. 637. Head only	24/–	25/6	27/–	28/6	30/–	per doz.
No. 637H. Handled	27/–	28/6	30/–	31/6	33/–	,,

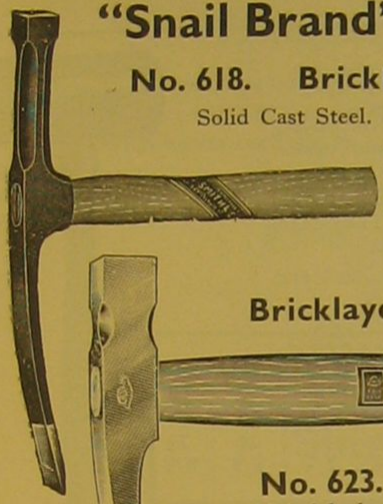
No. R44 Riveting Tack Hammer



Price ... ... 8/9 per doz.

BRICK HAMMERS: HICKORY HANDLES

"Snail Brand" Bricklayers' and Slaters' Hammers (British Made)



No. 618

No. 618. Bricklayers' Hammer

Solid Cast Steel. Ash Handle.

Nos.	618S	618L
Length Head, ins.	11	12½
Price, per doz.	41/–	42/–

Bricklayers' Hammers

No. 623. Solid Cast Steel.
All bright head. **Hickory Handle.**
Length, 8 ins. **Price, 49/3 per doz.**

No. 623G. Self-colour. **Ash Handle.**
Length, 8 ins. **Price, 36/– per doz.**

No. 625 Red and Bright.
Ash Handle. **Price 40/3 per doz.**

No. 640

No. 640. Slaters' Hammer

Scotch Pattern. "Weldless."
Price ... ... **70/– per doz.**

No. 645

No. 645 Slaters' Hammer

Improved Pattern. "Weldless."
Price ... ... **70/– per doz.**

COMET Finest Quality Hickory Handles (British Made)

FOR ADZE EYE HAMMER

FOR CLUB HAMMER

FOR JOINERS' HAMMER, SHAPED

FOR ENGINEERS' LIGHT or HEAVY HAMMER

FOR LIGHT PIN HAMMER

FOR FELLING AXE

FOR SLEDGE HAMMER

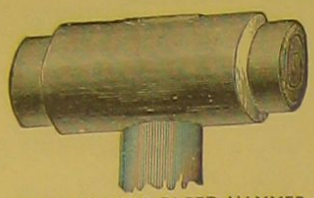
FOR HAND HATCHET

FOR NAVVY PICK

Hickory Handles Length, Ins.	Prices Each								Prices Per Dozen							
	10	12	13	14	16	18	30	36	10	12	13	14	16	18	30	36
Light Pin Hammer	—	—	4d.	—	—	—	—	—	—	—	3/-	—	—	—	—	—
Engineers' Light Hammer	—	3½d.	—	4d.	4½d.	—	—	—	—	2/9	—	3/3	3/9	—	—	—
Engineers' Smiths' Patt. Heavy Hammer	—	4d.	—	4½d.	5d.	5½d.	—	—	—	3/-	—	3/6	4/-	4/8	—	—
Joiners' Shaped Hammer ...	—	3½d.	—	4d.	4½d.	—	—	—	—	2/9	—	3/-	3/6	—	—	—
Adze Eye Hammer	—	—	5d.	5½d.	—	—	—	—	—	—	4/-	4/6	—	—	—	—
Club Hammer	4d.	—	—	—	—	—	—	—	3/-	—	—	—	—	—	—	—
Hand Hatchet (Fawn-Foot)	—	—	—	7d.	8d.	10½d.	—	—	—	—	—	6/-	7/-	9/6	—	—
Sledge Hammer (Lon. Patt.)	—	—	—	—	—	—	10d.	1/-	—	—	—	—	—	—	9/-	10/6
Navvy Pick (Grade "A") ...	—	—	—	—	—	—	—	1/6	—	—	—	—	—	—	—	17/-
Felling Axe (American Patt.) 2¾×¾ ins.	—	—	—	—	—	—	—	2/-	—	—	—	—	—	—	—	22/-

RAW HIDE, COPPER & RUBBER HAMMERS, MOULDS, ETC.

COMET Raw Hide Hammers and Mallets (British Made)



"COMET" HIDE FACED HAMMER

These Hammers and Mallets are useful to workers in silver, brass, and jewellery, and to engineers, moulders, aircraft, and motor manufacturers, etc.

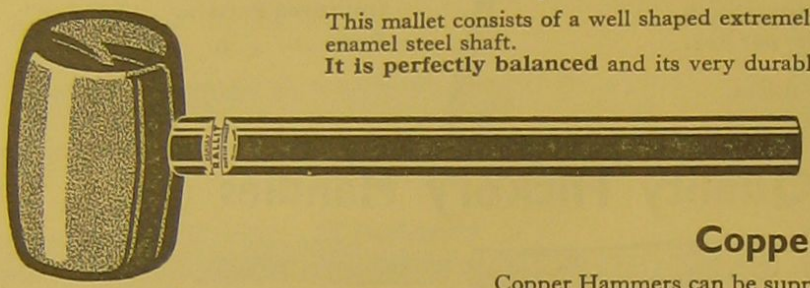
When the raw hide faces of the hammers become worn they can be easily renewed and replaced at small cost. They need no fastening except a tight fit in the shell of the hammer.

Raw Hide Mallets are made with solid heads, and are effective for light work and in place of boxwood mallets.

"COMET" RAW HIDE MALLET

	HIDE FACED HAMMERS					RAW HIDE MALLETS							
Size No.	1	2	3	4	5	1	1A	2	3	4	5	6	6A
Approx. Weight lbs.	1¼	2	2¾	4¼	7	3	—	5	7	10	16	20	24
Diam. of Face ins.	1¼	1⅝	1¾	2	2¾	1¼	—	1½	1¾	2	2½	2¾	2¾
Price Each	3/-	3/9	5/-	7/6	10/9	2/3	4/-	2/6	3/3	4/-	7/-	7/9	8/9
Extra Faces per pair	1/6	1/9	2/-	3/-	4/6								

Henley-Rallit Rubber Headed Mallet (British Made)



This mallet consists of a well shaped extremely resistant rubber head mounted on a sprayed enamel steel shaft.

It is perfectly balanced and its very durable rubber head gives it remarkably long life.

The mallet is very useful for many trades, where it is required to strike a heavy blow without injury to the work.

Weight, 1¾ lbs.

Price ... ... **3/6 each.**

Copper Hammers (British Made)

Copper Hammers can be supplied in weights 1, 1½, 2, 2½, 3, 4, 5, 6, and 7 lbs **Prices on application** owing to fluctuations in the market price of copper.

The Field Hammer Mould (Made in U.S.A.)

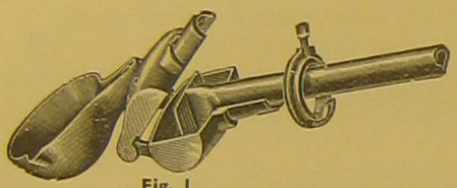


Fig. 1

In many machine shop operations it is necessary to use a hammer which, while capable of striking a heavy blow, must yet be of fairly soft metal, so that no mark is left upon the work. The device shown herewith provides a cheap and economical means of obtaining just such a hammer.

Fig. 1 illustrates the Mould with Handle in position. Close the Mould, fasten the ring, and the Mould is then ready for the fire (see Fig. 2).

The Ladle is attached to the Mould in such a manner that the mere depression of the handle causes the molten metal to flow into the Mould and surround the end of the handle (see Fig. 3).

The metal should be heated enough to just melt it, as enough heat is conveyed to the Mould during the operation to allow the metal to flow evenly.

The handle itself consists of a piece of pipe, forged to form a T-shaped end (see Fig. 1). An ordinary pipe-fitting T will answer the same purpose, provided the ends are first plugged to prevent the metal from flowing into the pipe.

The Ladle can be used for other purposes, such as babbitting bearings, etc. Made in two sizes.

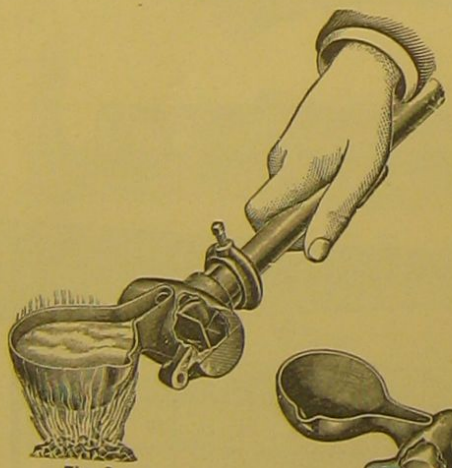


Fig. 2

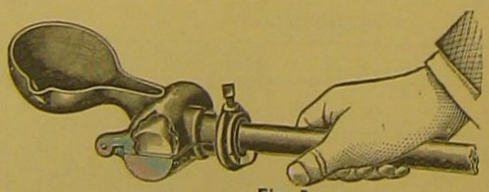
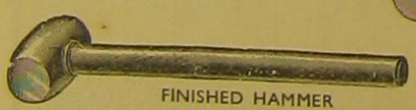


Fig. 3



FINISHED HAMMER

Prices

Mould, complete, with one Lead Hammer weighing 3½ lbs. **12/6**

Mould, complete, with one Lead Hammer weighing 6 lbs. **16/-**

Extra Handles, per dozen **12/6**

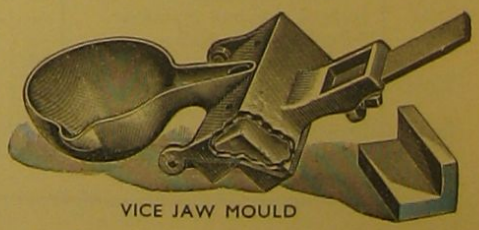
Lead Hammer only, weight 3½ lbs. ... **3/6**

" " " " 6 lbs. ... **4/6**

The Field Vice Jaw Mould (Made in U.S.A.)

The description of the Soft Hammer Mould applies equally to this Mould.

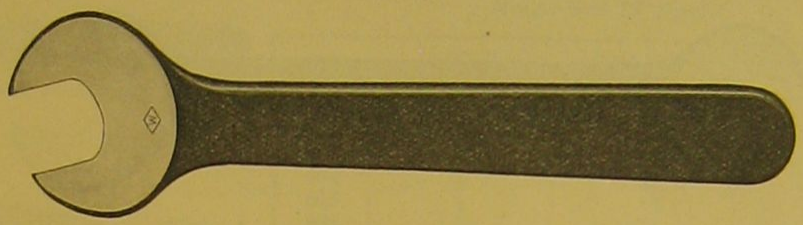
Price, complete, with one pair of Finished Jaws **17/6**



VICE JAW MOULD

Williams' Hardened Steel Wrenches (Made in U.S.A.)

These Wrenches made from drop-forgings of selected carbon steel possess qualities giving both stiffness and tensile strength. **Openings are milled,** case-hardened and with heads ground bright, edges smoothed and finished black enamel. **Made with heads inclined to 15 degrees** and in Whitworth and Metric sizes.

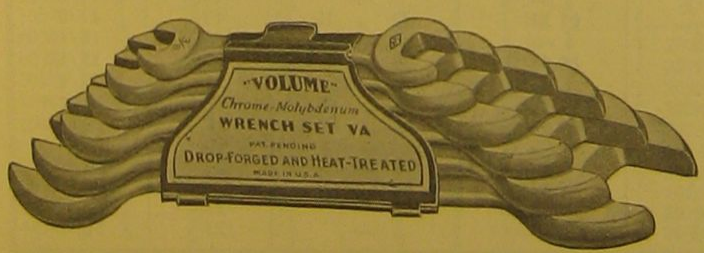


Single End Wrenches—15° Angle

Sizes and Prices

Whitworth No.	Whitworth Bolt Sizes Ins.	Opening Ins.	Metric No.	Opening M/m.	Length Overall ns.	Price Each Finished
00	$\frac{1}{8}$	$\frac{5}{16}$	M 00	8	$3\frac{1}{2}$	1/2
0	$\frac{3}{16}$	$\frac{13}{32}$	M 0	10	4	1/3
1	$\frac{1}{4}$	$\frac{1}{2}$	M 1	12	$4\frac{1}{2}$	1/6
2	$\frac{5}{16}$	$\frac{19}{32}$	M 2	14	$5\frac{1}{2}$	1/10
3	$\frac{3}{8}$	$\frac{11}{16}$	M 3	16	$6\frac{3}{8}$	2/2
—	—	—	M 3 T	18	$6\frac{3}{8}$	2/2
4	$\frac{7}{16}$	$\frac{25}{32}$	M 4	20	$7\frac{1}{4}$	2/8
5	$\frac{1}{2}$	$\frac{7}{8}$	M 5	22	$8\frac{1}{8}$	3/2
6	$\frac{9}{16}$	$\frac{31}{32}$	M 6	25	$9\frac{1}{4}$	3/10
7	$\frac{5}{8}$	$1\frac{1}{16}$	M 7	28	$10\frac{1}{2}$	4/9
8	$\frac{3}{4}$	$1\frac{1}{4}$	M 8	30	12	6/3
—	—	—	M 8 T	32	12	6/3
9	$\frac{7}{8}$	$1\frac{7}{16}$	M 9	35	$13\frac{1}{2}$	9/7
—	—	—	M 9 T	38	13	9/7
10	1	$1\frac{5}{8}$	M 10	40	15	13/4
—	—	—	M 10 T	42	15	13/4
11	$1\frac{1}{8}$	$1\frac{13}{16}$	M 11	45	$16\frac{1}{2}$	17/6
12	$1\frac{1}{4}$	2	M 12	50	$18\frac{1}{2}$	23/9
13	$1\frac{3}{8}$	$2\frac{3}{16}$	—	—	20	30/5
14	$1\frac{1}{2}$	$2\frac{3}{8}$	—	—	22	38/4
15	$1\frac{5}{8}$	$2\frac{9}{16}$	—	—	24	46/8
16	$1\frac{3}{4}$	$2\frac{3}{4}$	—	—	27	55/10
16 A	$1\frac{7}{8}$	$2\frac{15}{16}$	—	—	27	55/10
17	2	$3\frac{1}{8}$	—	—	30	85/5
18	$2\frac{1}{4}$	$3\frac{1}{2}$	—	—	34	122/11
19	$2\frac{1}{2}$	$3\frac{7}{8}$	—	—	38	175/-
19 A	$2\frac{1}{2}$	$4\frac{1}{4}$	—	—	38	175/-
20	3	$4\frac{5}{8}$	—	—	42	258/4

Williams "Volume" Wrench Sets, VA and VU (Made in U.S.A.)



Comprising Six Wrenches with 12 different openings.

Wrenches are held by spring tension in individual pockets of a sturdy metal container, and any wrench can be removed without disturbing the others in the set.

Set VA —Wrenches are **chrome-molybdenum steel,** hardened jaws milled and ground on face.

Set VU —Wrenches are **drop-forged carbon steel** with milled openings in jaws.

Range of Whitworth Sizes covered by each Set:— $\frac{1}{8}\times\frac{3}{16}$, $\frac{1}{4}\times\frac{5}{16}$, $\frac{5}{16}\times\frac{7}{16}$, $\frac{3}{8}\times\frac{7}{16}$, $\frac{7}{16}\times\frac{1}{2}$, $\frac{1}{2}\times\frac{9}{16}$ inch.

Prices, Set "VA" ... ... **12/6 per Set**
,, Set "VU" ... **4/9 ,,**

Williams' Hardened Steel Wrenches (Made in U.S.A.)

These Wrenches made from drop-forgings of selected carbon steel possess qualities giving both stiffness and tensile strength. **Openings are milled.** Case-hardened with heads ground bright, edges smoothed and finished black enamel. **Made with Heads inclined to 15 degrees** and in Whitworth and metric sizes.

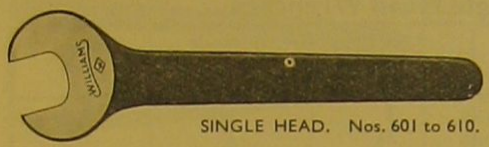
Double End Wrenches—15° Angle

Whitworth No.	Whitworth Bolt Sizes. Ins.	Opening Ins.	Metric No.	Opening m/m.	Length Overall Ins.	Price Each Finished
21	$\frac{1}{8}$ and $\frac{3}{16}$	$\frac{5}{16}$ and $\frac{13}{32}$	M 21	6 and 8	4	1/5
—	—	—	M 21 T	7 ,, 9	4	1/5
22	$\frac{1}{8}$,, $\frac{1}{4}$	$\frac{5}{16}$,, $\frac{1}{2}$	—	—	$4\frac{1}{4}$	1/9
23	$\frac{3}{16}$,, $\frac{1}{4}$	$\frac{13}{32}$,, $\frac{1}{2}$	M 23	10 ,, 12	$4\frac{5}{8}$	1/9
24	$\frac{3}{16}$,, $\frac{5}{16}$	$\frac{13}{32}$,, $\frac{19}{32}$	—	—	5	2/1
725	$\frac{1}{4}$,, $\frac{5}{16}$ S.A.E.	$\frac{7}{16}$,, $\frac{1}{2}$	—	—	5	2/1
725 A	$\frac{1}{4}$,, $\frac{3}{8}$ S.A.E.	$\frac{7}{16}$,, $\frac{9}{16}$	—	—	5	2/1
25	$\frac{1}{4}$,, $\frac{5}{16}$	$\frac{1}{2}$,, $\frac{19}{32}$	—	—	$5\frac{1}{2}$	2/1
—	—	—	M 25 T	12 ,, 13	$5\frac{1}{2}$	2/1
—	—	—	M 25	12 ,, 14	$5\frac{1}{2}$	2/1
726	$\frac{5}{16}$,, $\frac{7}{16}$	$\frac{1}{2}$,, $\frac{5}{8}$	—	—	6	2/7
26	$\frac{1}{4}$,, $\frac{3}{8}$	$\frac{1}{2}$,, $\frac{11}{16}$	—	—	6	2/7
727	$\frac{3}{8}$,, $\frac{7}{16}$ S.A.E.	$\frac{9}{16}$,, $\frac{5}{8}$	—	—	6	2/7
27	$\frac{5}{16}$,, $\frac{3}{8}$	$\frac{19}{32}$,, $\frac{11}{16}$	M 27	14 ,, 16	$6\frac{1}{2}$	2/7
—	—	—	M 27 T	15 ,, 16	$6\frac{1}{2}$	2/7
728	$\frac{3}{8}$,, $\frac{1}{2}$ S.A.E.	$\frac{9}{16}$,, $\frac{3}{4}$	—	—	7	3/1
28	$\frac{6}{16}$,, $\frac{7}{16}$	$\frac{19}{32}$,, $\frac{25}{32}$	M 28	16 ,, 18	7	3/1
29	$\frac{3}{8}$,, $\frac{7}{16}$	$\frac{11}{16}$,, $\frac{25}{32}$	M 29 T	18 ,, 19	$7\frac{1}{2}$	3/1
—	—	—	M 29	18 ,, 20	$7\frac{1}{2}$	3/1
30	$\frac{3}{8}$,, $\frac{1}{2}$	$\frac{11}{16}$,, $\frac{7}{8}$	—	—	8	3/9
31	$\frac{7}{16}$,, $\frac{1}{2}$	$\frac{25}{32}$,, $\frac{7}{8}$	M 31	20 ,, 22	$8\frac{3}{4}$	3/9
—	—	—	M 31 T	21 ,, 23	$8\frac{3}{4}$	3/9
32	$\frac{7}{16}$,, $\frac{9}{16}$	$\frac{25}{32}$,, $\frac{31}{32}$	—	—	$9\frac{1}{2}$	4/7
33	$\frac{1}{2}$,, $\frac{9}{16}$	$\frac{7}{8}$,, $\frac{31}{32}$	M 32	22 ,, 25	$9\frac{1}{2}$	4/7
—	—	—	M 34	23 ,, 27	$9\frac{1}{2}$	5/8
34	$\frac{1}{2}$,, $\frac{5}{8}$	$\frac{7}{8}$,, $1\frac{1}{16}$	M 34 T	24 ,, 26	$10\frac{3}{4}$	5/8
34 A	$\frac{5}{8}$,, $\frac{3}{4}$	$\frac{15}{16}$,, $1\frac{1}{16}$	—	—	$10\frac{3}{4}$	5/8
35	$\frac{9}{16}$,, $\frac{5}{8}$	$\frac{31}{32}$,, $1\frac{1}{16}$	M 35	25 ,, 28	$10\frac{3}{4}$	5/8
36	$\frac{9}{16}$,, $\frac{3}{4}$	$\frac{31}{32}$,, $1\frac{1}{4}$	M 36	28 ,, 30	12	8/-
37	$\frac{5}{8}$,, $\frac{3}{4}$	$1\frac{1}{16}$,, $1\frac{1}{4}$	—	—	12	8/-
—	—	—	M 37	30 ,, 32	12	8/-
38	$\frac{5}{8}$,, $\frac{7}{8}$	$1\frac{1}{16}$,, $1\frac{7}{16}$	—	—	$13\frac{1}{2}$	11/8
39	$\frac{3}{4}$,,	$1\frac{1}{4}$,, $1\frac{7}{16}$	M 39	32 ,, 35	$13\frac{1}{2}$	11/8
40	$\frac{3}{4}$,,	$1\frac{1}{4}$,, $1\frac{5}{8}$	—	—	$15\frac{1}{2}$	15/10
41	$\frac{7}{8}$,,	$1\frac{7}{16}$,, $1\frac{5}{8}$	M 41	38 ,, 40	$15\frac{1}{2}$	15/10
42	$\frac{7}{8}$,, $1\frac{1}{8}$	$1\frac{7}{16}$,, $1\frac{13}{16}$	—	—	17	22/1
43	,, $1\frac{1}{8}$	$1\frac{5}{8}$,, $1\frac{13}{16}$	M 43	42 ,, 45	17	22/1
44	,, $1\frac{1}{4}$	$1\frac{5}{8}$,, 2	M 44	46 ,, 50	19	30/-
45	$1\frac{1}{8}$,, $1\frac{1}{4}$	$1\frac{13}{16}$,, 2	—	—	19	30/-
46	$1\frac{1}{8}$,, $1\frac{3}{8}$	$1\frac{13}{16}$,, $2\frac{3}{16}$	—	—	21	43/9
47	$1\frac{1}{4}$,, $1\frac{3}{8}$	2 ,, $2\frac{3}{16}$	M 47	50 ,, 59	21	43/9
48	$1\frac{1}{4}$,, $1\frac{1}{2}$	2 ,, $2\frac{3}{8}$	—	—	23	58/4
49	$1\frac{3}{8}$,, $1\frac{1}{2}$	$2\frac{3}{16}$,, $2\frac{3}{8}$	—	—	23	58/4

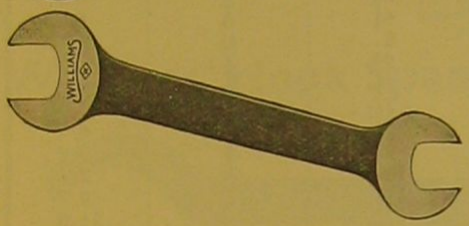
Larger Sizes can be supplied. Prices on Application.

Williams Check Nut or "Thin" Wrenches (Made in U.S.A.)

For check nuts, lock nuts, etc. This type of wrench is amply strong enough for its intended purpose, but is not designed for severe service. **Finished, milled with surface and edges smoothed,** hardened, black enamelled and bright heads.



SINGLE HEAD. Nos. 601 to 610.



DOUBLE HEAD. No. 623 to 640.

Single End 15° Angle

No.	To Suit Nuts Whitworth Standard	Length Overall Ins.	Thickness of Head Ins.	Price Each
601	$\frac{1}{4}$	4	$\frac{5}{32}$	1/6
602	$\frac{5}{16}$	$4\frac{1}{2}$	$\frac{11}{64}$	1/10
603	$\frac{3}{8}$	$5\frac{1}{8}$	$\frac{3}{16}$	2/2
604	$\frac{7}{16}$	$5\frac{7}{8}$	$\frac{7}{32}$	2/8
605	$\frac{1}{2}$	$6\frac{5}{8}$	$\frac{1}{4}$	3/2
606	$\frac{9}{16}$	$7\frac{1}{2}$	$\frac{9}{32}$	3/9
607	$\frac{5}{8}$	$8\frac{1}{2}$	$\frac{5}{16}$	4/6
608	$\frac{3}{4}$	10	$\frac{3}{8}$	5/8
609	$\frac{7}{8}$	$11\frac{5}{8}$	$\frac{7}{16}$	7/8
610	1	$13\frac{1}{4}$	$\frac{1}{2}$	10/10

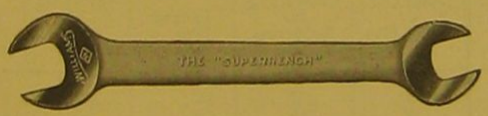
Double-End Wrenches 15° Angle

No.	To Suit Nuts Whitworth Standard	Length Overall Ins.	Thickness of Head Ins.	Price Each
623	$\frac{3}{16}$ and $\frac{1}{4}$	$4\frac{3}{4}$	$\frac{5}{32}$	2/1
624	$\frac{3}{16}$ " $\frac{5}{16}$	$4\frac{3}{4}$	$\frac{5}{32}$	2/1
625	$\frac{1}{4}$ " $\frac{5}{16}$	$4\frac{3}{4}$	$\frac{5}{32}$	2/1
626	$\frac{1}{4}$ " $\frac{3}{8}$	6	$\frac{3}{16}$	2/8
627	$\frac{5}{16}$ " $\frac{3}{8}$	6	$\frac{3}{16}$	2/8
628	$\frac{5}{16}$ " $\frac{7}{16}$	$6\frac{3}{4}$	$\frac{3}{16}$	3/-
629	$\frac{3}{8}$ " $\frac{7}{16}$	$6\frac{3}{4}$	$\frac{3}{16}$	3/-
630	$\frac{3}{8}$ " $\frac{1}{2}$	$7\frac{1}{2}$	$\frac{7}{32}$	3/4
631	$\frac{7}{16}$ " $\frac{1}{2}$	$7\frac{1}{2}$	$\frac{7}{32}$	3/4
632	$\frac{7}{16}$ and $\frac{9}{16}$	$8\frac{3}{4}$	$\frac{1}{4}$	4/8
633	$\frac{1}{2}$ " $\frac{9}{16}$	$8\frac{3}{4}$	$\frac{1}{4}$	4/8
634	$\frac{1}{2}$ " $\frac{5}{8}$	$8\frac{3}{4}$	$\frac{1}{4}$	4/8
635	$\frac{9}{16}$ " $\frac{5}{8}$	$10\frac{1}{2}$	$\frac{9}{32}$	7/-
636	$\frac{9}{16}$ " $\frac{3}{4}$	$10\frac{1}{2}$	$\frac{9}{32}$	7/-
637	$\frac{5}{8}$ " $\frac{3}{4}$	$10\frac{1}{2}$	$\frac{9}{32}$	7/-
638	$\frac{5}{8}$ " $\frac{7}{8}$	$12\frac{1}{2}$	$\frac{3}{8}$	10/10
639	$\frac{3}{4}$ " $\frac{7}{8}$	$12\frac{1}{2}$	$\frac{3}{8}$	10/10
640	$\frac{3}{4}$ " 1	$12\frac{1}{2}$	$\frac{3}{8}$	10/10

Williams "Superrench" Engineers' Wrenches (Made in U.S.A.)

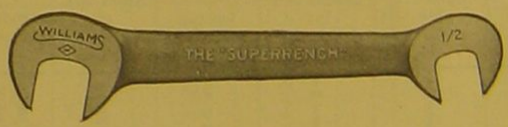
Made of chrome-molybdenum steel these wrenches are guaranteed against breakage. They are so strong that being made with thin heads and narrow pointed jaws they are particularly serviceable in places where clearance is limited. Supplied heat treated, chrome-finished and with buffed bright heads.

Double-Ended 15° Angle



No.	To Suit Nuts Whitworth Standard	Length Overall Approx. Ins.	Thickness of Head Ins.	Price Each
1021	$\frac{1}{8}$ and $\frac{3}{16}$	$4\frac{1}{4}$	$\frac{13}{64}$	3/4
1022	$\frac{1}{8}$ " $\frac{1}{4}$	$4\frac{3}{4}$	$\frac{7}{32}$	4/-
1023	$\frac{3}{16}$ " $\frac{1}{4}$	$4\frac{3}{4}$	$\frac{7}{32}$	4/-
1024	$\frac{3}{16}$ " $\frac{5}{16}$	$5\frac{1}{2}$	$\frac{15}{64}$	4/10
1025	$\frac{1}{4}$ " $\frac{5}{16}$	$5\frac{1}{2}$	$\frac{15}{64}$	4/10
1026	$\frac{1}{4}$ " $\frac{3}{8}$	$6\frac{1}{2}$	$\frac{9}{32}$	5/10
1027	$\frac{5}{16}$ " $\frac{3}{8}$	$6\frac{1}{2}$	$\frac{9}{32}$	5/10
1028	$\frac{5}{16}$ " $\frac{7}{16}$	$7\frac{3}{4}$	$\frac{5}{16}$	7/3
1029	$\frac{3}{8}$ " $\frac{7}{16}$	$7\frac{3}{4}$	$\frac{5}{16}$	7/3
1030	$\frac{3}{8}$ " $\frac{1}{2}$	$7\frac{3}{4}$	$\frac{5}{16}$	7/3
1031	$\frac{7}{16}$ " $\frac{1}{2}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
1032	$\frac{7}{16}$ " $\frac{9}{16}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
1033	$\frac{1}{2}$ " $\frac{9}{16}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
1034	$\frac{1}{2}$ " $\frac{5}{8}$	$10\frac{3}{4}$	$\frac{7}{16}$	13/-
1035	$\frac{9}{16}$ " $\frac{5}{8}$	$10\frac{3}{4}$	$\frac{7}{16}$	13/-
1036	$\frac{9}{16}$ " $\frac{3}{4}$	$12\frac{1}{4}$	$\frac{1}{2}$	18/3
1037	$\frac{5}{8}$ " $\frac{3}{4}$	$12\frac{1}{4}$	$\frac{1}{2}$	18/3

Double Ended 75° Angle



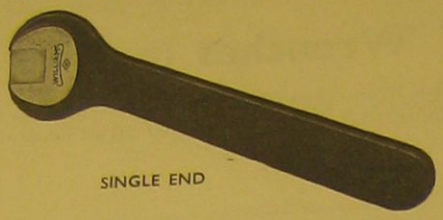
For reaching awkwardly placed nuts and working in close quarters. Both heads project from same side of handle and offer a comfortable grip.

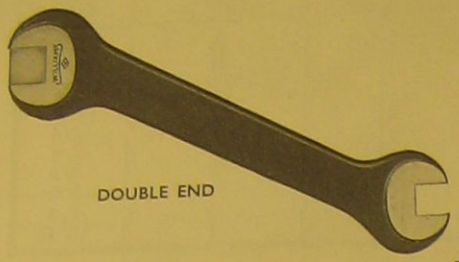
No.	To Suit Nuts Whitworth Standard	Length Overall Approx. Ins.	Thickness of Head Ins.	Price Each
2021	$\frac{1}{8}$ and $\frac{3}{16}$	$4\frac{1}{4}$	$\frac{13}{64}$	3/4
2022	$\frac{1}{8}$ " $\frac{1}{4}$	$4\frac{3}{4}$	$\frac{7}{32}$	4/-
2023	$\frac{3}{16}$ " $\frac{1}{4}$	$4\frac{3}{4}$	$\frac{7}{32}$	4/-
2024	$\frac{3}{16}$ " $\frac{5}{16}$	$5\frac{1}{2}$	$\frac{15}{64}$	4/10
2025	$\frac{1}{4}$ " $\frac{5}{16}$	$5\frac{1}{2}$	$\frac{15}{64}$	4/10
2026	$\frac{1}{4}$ " $\frac{3}{8}$	$6\frac{1}{2}$	$\frac{9}{32}$	5/10
2027	$\frac{5}{16}$ " $\frac{3}{8}$	$6\frac{1}{2}$	$\frac{9}{32}$	5/10
2028	$\frac{5}{16}$ " $\frac{7}{16}$	$7\frac{3}{4}$	$\frac{5}{16}$	7/3
2029	$\frac{3}{8}$ " $\frac{7}{16}$	$7\frac{3}{4}$	$\frac{5}{16}$	7/3
2030	$\frac{3}{8}$ " $\frac{1}{2}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
2031	$\frac{7}{16}$ " $\frac{1}{2}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
2032	$\frac{7}{16}$ " $\frac{9}{16}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10
2033	$\frac{1}{2}$ " $\frac{9}{16}$	$9\frac{1}{4}$	$\frac{3}{8}$	9/10

ENGINEERS' WRENCHES

Williams' Set Screw Wrenches (Made in U.S.A.)

Single or Double End—22½° Angle Opening.





Finished wrenches are milled, surface and edges smoothed, hardened and black enamelled, heads bright. Sizes stamped on heads.

Single Head Wrenches

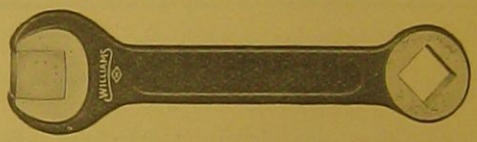
No.	For Set Screws Ins.	Length Overall Ins.	Thickness Head Ins.	Price Each
500	3/16	3	3/16	1/2
501	1/4	3 1/2	1/4	1/5
502	5/16	4 1/2	5/16	1/9
503	3/8	5	11/32	2/1
504	7/16	5 1/2	3/8	2/7
505	1/2	6 1/8	7/16	3/2
506	9/16	7 1/2	1/2	3/10
507	5/8	8 1/2	9/16	4/7
508	3/4	9 1/2	5/8	5/8
509	7/8	10 1/2	11/16	7/-
510	1	11 1/2	3/4	9/2
511	1 1/8	12 1/2	13/16	11/8

Double Head Wrenches

No.	For Set Screws Ins.	Length Overall Ins.	Thickness Head Ins.	Price Each	No.	For Set Screws Ins.	Length Overall Ins.	Thickness Head Ins.	Price Each
523	3/16 and 1/4	3 1/4	7/32	1/8	533	1/2 and 9/16	7 1/2	1/2	4/6
525	1/4 " 5/16	4 1/4	9/32	2/-	534	1/2 " 5/8	8 1/2	9/16	5/5
526	1/4 " 3/8	5	11/32	2/5	535	9/16 " 5/8	8 1/2	9/16	5/5
527	5/16 " 3/8	5	11/32	2/5	537	5/8 " 3/4	9 3/4	5/8	6/8
528	5/16 " 7/16	5 3/4	3/8	2/11	539	3/4 " 7/8	11	11/16	8/4
529	3/8 " 7/16	5 3/4	3/8	2/11	540	3/4 " 1	12 1/2	3/4	10/10
530	3/8 " 1/2	6 5/8	7/16	3/9	541	7/8 " 1	12 1/2	3/4	10/10
531	7/16 " 1/2	6 5/8	7/16	3/9					

Williams' Tool Post Wrenches—Double End (Made in U.S.A.)

For Set Screws



For Nuts and Set Screws

Finished Wrenches are milled and broached, surface and edges smoothed, hardened, black enamelled, bright heads. Sizes stamped on heads.

No.	Open End for Set Screw Ins.	Closed End for Set Screw Ins.	Length Ins.	Thickness of Heads Ins.	Price Each
554	7/16	7/16	5 1/2	1/2	4/8
555	1/2	1/2	6	9/16	5/2
556	5/8	5/8	7	5/8	6/-
557	3/4	3/4	7 5/8	11/16	6/10

No.	Open End for Whit. Nut Ins.	Closed End for Set Screw Ins.	Length Ins.	Thickness of Heads Ins.	Price Each
563	1/2	7/16	7	9/16	6/-
563C	1/2	9/16	7	9/16	6/-
563D	1/2	5/8	7	9/16	6/-
564	5/8	5/8	7 1/2	5/8	6/10
565	5/8	3/4	8	5/8	8/1
566	3/4	3/4	9 1/4	3/4	10/-

Williams' Pin Spanners (Made in U.S.A.)

Finished Spanners have smooth surfaces, milled pin and are hardened all over and black enamelled.

No.	For Circle Diam. Ins.	Overall Length Ins.	Finished Diam of Pin Ins.	Price Each	No.	For Circle Diam. Ins.	Overall Length Ins.	Finished Diam of Pin Ins.	Price Each
452	1	4	3/16	2/3	460	3	8	5/16	3/6
453	1 1/4	4 1/2	13/64	2/5					
454	1 1/2	5	7/32	2/6	461	3 1/4	8 1/2	21/64	3/9
455	1 3/4	5 1/2	15/64	2/7	462	3 1/2	9	11/32	4/-
456	2	6	1/4	2/9	463	3 3/4	9 1/2	23/64	4/3
457	2 1/4	6 1/2	17/64	2/11					
458	2 1/2	7	9/32	3/-	464	4	10	3/8	4/6
459	2 3/4	7 1/2	19/64	3/3	466	5	12	7/16	6/-
					468	6	14	1/2	8/2

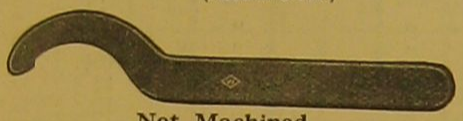
Williams' Adjustable Face Spanners (Made in U.S.A.)

Dependable drop-forged steel tools for use where centre to centre dimensions vary. **Finished.**

No.	Capacity Ins.	Overall Length Ins.	Diam. of Pins Ins.	Price Each
482	2	6 3/8	3/16	6/3
483	3	8 1/4	1/4	9/2
484	4	10 3/8	5/16	13/4

Williams' Hook Spanners

(Made in U.S.A.)



Not Machined

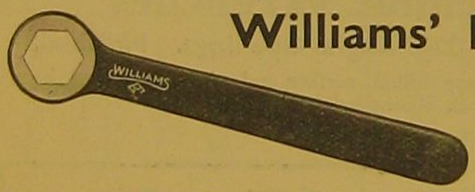
No.	Forgings with Finish for Circles, Diam. Ins.	Length Overall Ins.	Thickness Ins.	Price Each
403	1 to 1 1/4	4 3/4	7/32	1/8
404	1 3/8 ,, 1 5/8	6	1/4	1/11
405	1 3/4 ,, 2	7 1/8	1/4	2/2
406	2 1/8 ,, 2 3/8	8 7/16	1/4	2/6
407	2 1/2 ,, 2 3/4	9 3/4	1/4	2/10
408	2 7/8 ,, 3 1/4	11	5/16	3/4
409	3 3/8 ,, 3 7/8	12	5/16	4/-
410	4 ,, 4 1/2	13	5/16	4/10
412	5 1/4 ,, 5 3/4	15	7/16	7/1

Williams' Adjustable Hook Spanners (Made in U.S.A.)

Each spanner provides a wide range of sizes and offers a combination of strength and ready adjustment.

Made of drop-forged steel, with hardened and tempered jaw and surfaces smoothed, black enamelled.

No.	Capacity Ins.	Overall Length Ins.	Thickness Handle Ins.	Thickness Hook Ins.	Depth Hook Ins.	Price Each
471	3/4 to 2	6 3/8	1/4	5/16	1/8	7/4
472	1 1/4 ,, 3	8 1/8	9/32	3/8	5/32	8/4
474	2 ,, 4 3/4	11 3/8	5/16	7/16	3/16	11/6

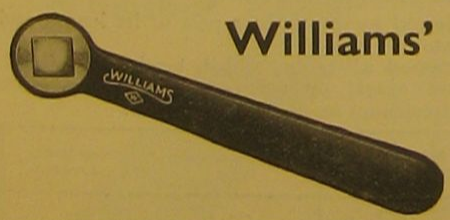


Williams' Hexagon Box Wrenches (Made in U.S.A.)

Single Head—15° Angle Opening

Made of Carbon steel. For use where there is limited head clearance. These wrenches are very strong and light tools. **Finished.**

No.	For Whitworth Nuts Ins.	Overall Length Ins.	Thickness Head Ins.	Outside Dia. Head Ins.	Price Each	No.	For Whitworth Nuts Ins.	Overall Length Ins.	Thickness Head Ins.	Outside Dia. Head Ins.	Price Each
800	3/16	3 1/2	3/16	3/8	1/6	806	9/16	8 3/4	7/16	1 5/8	4/2
801	1/4	4	1/4	20/32	1/9	807	5/8	9 7/8	31/64	1 3/4	5/2
802	5/16	4 7/8	9/32	1 3/32	2/1	808	3/4	11 1/2	9/16	2 1/16	6/6
803	3/8	5 7/8	5/16	1 1/4	2/5	809	7/8	13 3/8	21/32	2 3/8	8/8
804	7/16	6 7/8	11/32	1 3/8	2/11	810	1	15 1/4	3/4	2 5/8	11/8
805	1/2	7 3/4	25/64	1 1/2	3/6						

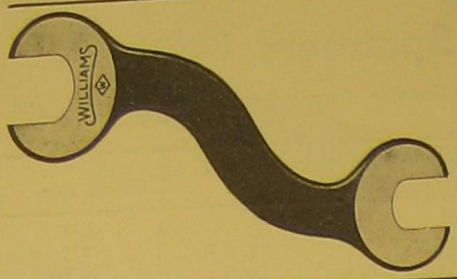


Williams' Square Box Wrenches (Made in U.S.A.)

Single Head—20½° Angle Opening

Finished wrenches are broached, surface and edges smoothed, hardened and black enamelled, heads bright.

No.	For Set Screw Size	Overall Length Ins.	Thickness Head Ins.	Outside Dia. Head Ins.	Price Each	No.	For Set Screw Size	Overall Length Ins.	Thickness Head Ins.	Outside Dia. Head Ins.	Price Each
580	3/16	3	1/4	1/2	1/3	586	9/16	6 1/4	1/2	1 3/16	3/5
581	1/4	3 3/8	9/32	5/8	1/5	587	5/8	7	5/16	1 5/16	4/2
582	5/16	3 3/4	5/16	11/16	1/8	588	3/4	8	5/8	1 9/16	5/2
583	3/8	4 1/4	3/8	27/32	2/-	589	7/8	9	11/16	1 25/32	6/9
584	7/16	4 7/8	7/16	31/32	2/4	590	1	10	3/4	2	8/9
585	1/2	5 1/2	15/32	1 1/16	2/10						



Williams' "S" Wrenches (Made in U.S.A.)

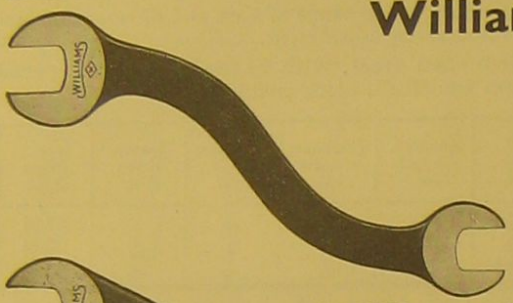
Double Ended—Flat Handle. 22½° Angle Openings

Made of Carbon steel.

Finished wrenches are milled, surface and edges smoothed, hardened and black enamelled, bright heads.

Sizes are stamped on heads.

No.	Whitworth Bolt Sizes Ins.	Opening Ins.	Length Overall Ins.	Price Each
661A	⅛ and 3/16	5/16 and 13/32	4	1/10
661 C	5/16 ,, ¼	13/32 ,, ½	4	1/10
662 B	¼ ,, 5/16	½ ,, 19/32	5	2/5
662 C	¼ ,, ⅜	½ ,, 11/16	5	2/5
663 A	5/16 ,, ⅜	19/32 ,, 11/16	6¼	3/3
663 C	⅜ ,, 7/16	11/16 ,, 25/32	6¼	3/3
664 A	⅜ and ½	11/16 and ⅞	7½	4/5
664 B	7/16 ,, ½	25/32 ,, ⅞	7½	4/5
665 B	½ ,, 5/8	⅞ ,, 1 1/16	9	6/-
666 B	5/8 ,, ¾	1 1/16 ,, 1¼	10½	8/4
667 A	¾ ,, ⅞	1¼ ,, 1 7/16	12	12/1
667 C	⅞ ,, 1	1 7/16 ,, 1⅝	12	12/1

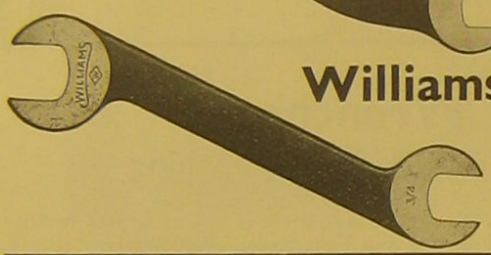


Williams' Light Service Wrenches (Made in U.S.A.)

Double Head—22½° Angle Openings

Carbon Steel. Finished

No.	Whitworth Bolt Sizes Ins.	Opening Ins.	Length Overall Ins.	Price Each
75	3/16 and ¼	13/32 and ½	6¼	2/3
79 D	5/16 ,, ⅜	19/32 ,, 11/16	8¼	3/7
83 C	⅜ ,, 5/8	⅞ ,, 1 1/16	10⅜	5/10
85 C	5/8 ,, ¾	1 1/16 ,, 1¼	12	8/4



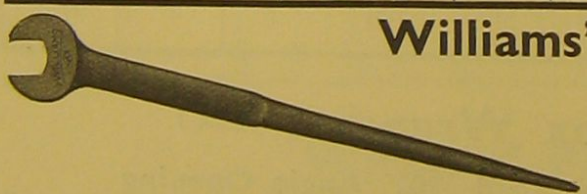
Williams' Textile Machine Wrenches (Made in U.S.A.)

Double Head—22½° Angle Openings. Finished.

Finished Wrenches are milled, surface and edges smoothed, heads bright, hardened. Black enamelled.

Sizes stamped on heads.

No.	Whitworth Bolt Sizes Ins.	Opening Ins.	Length Overall Ins.	Price Each
760 B	3/16 and ¼	13/32 and ½	4¾	2/1
761 A	¼ ,, 5/16	½ ,, 19/32	5¾	2/7
761 C	5/16 ,, ⅜	19/32 ,, 11/16	5¾	2/7
762 B	⅜ ,, 7/16	11/16 ,, 25/32	7	3/4
762 C	⅜ ,, ½	11/16 ,, ⅞	7	3/4
763 A	7/16 and ½	25/32 and 31/32	8¼	4/5
764 A	½ ,, 5/8	⅞ ,, 1 1/16	9½	6/-
764 B	9/16 ,, 5/8	31/32 ,, 1 1/16	9½	6/-
765 A	5/8 ,, ¾	1 1/16 ,, 1¼	11	8/-
765 C	¾ ,, ⅞	1¼ ,, 1 7/16	11	8/-



Williams' Construction Wrenches (Made in U.S.A.)

15° Angle Opening

The long handle is round for the greater part of its length and tapers for insertion into bolt holes.

Wrenches are hardened all over, milled, heads not ground. **Supplied in carbon steel, or "Superrench"** which are made of Chrome-molybdenum steel chrome finished.

Whitworth Bolt Sizes Ins.	Opening Ins.	Overall Length Ins.	Thickness of Head Ins.	Carbon Steel No.	Price Each Carbon Steel	"Superrench" No.	Price Each "Superrench"
¼	½	8	3/8	201	3/2	—	—
5/16	19/32	8	3/8	202	3/2	—	—
3/8	11/16	9½	7/16	203	4/-	1203	8/4
7/16	25/32	9½	7/16	204	4/-	—	—
½	⅞	11	½	205	5/-	1205	10/10
9/16	31/32	11	½	206	5/-	—	—
⅝	1 1/16	13	9/16	207	6/6	1207	15/-
¾	1¼	15	⅝	208	8/7	1208	20/5
⅞	1 7/16	17	11/16	209	11/3	1209	28/2
1	1⅝	19	¾	210	15/-	1210	39/7
1⅛	1 13/16	21	⅞	211	22/1	—	—
1¼	2	21	⅞	212	22/1	—	—

ENGINEERS' WRENCHES

"SNAIL BRAND"

15° Angle Hardened Steel Wrenches

These Wrenches are of British manufacture. They are of high quality and are supplied in a wide range of sizes. Steel of proved quality only is used in their construction, and after machining the spanners are heat treated and thoroughly tested. **Jaws are ground to a degree of accuracy ensuring perfect fit to the nut.**

Double-End Wrenches

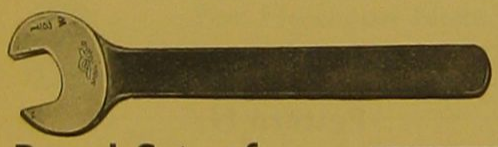
First Quality. Smooth Gun Black Finish. Polished Heads.

Pattern Z. Whitworth Sizes

Sizes Whitworth Bolts In.	B.S.F. Bolt Size In.	Length Overall Ins.	Approx. Weight each Lbs.	Approx. Weight each Ozs.	Price Each	Sizes Whitworth Bolts In.	B.S.F. Bolt Size In.	Length Overall Ins.	Approx. Weight Each Lbs.	Approx. Weight Each Ozs.	Price Each
1/8 × 3/16	—	4	0	2	/9	1/2 × 5/8	9/16 × 11/16	10	1	8	2/11
1/8 × 1/4	5/16	5	0	3	/11	9/16 × 5/8	5/8 × 11/16	10	1	8	2/11
3/16 × 1/4	1/4 × 5/16	5	0	3	/11	9/16 × 11/16	5/8 × 3/4	10	1	8	2/11
3/16 × 5/16	1/4 × 3/8	5½	0	4	1/2	5/8 × 3/4	11/16 × 7/8	11¼	1	10	4/-
1/4 × 5/16	5/16 × 3/8	5½	0	4	1/2	3/4 × 7/8	7/8 × 1	13½	2	14	6/6
1/4 × 3/8	5/16 × 7/16	6	0	6	1/4	3/4 × 1	7/8 × 1 1/8	15	3	14	8/-
5/16 × 3/8	3/8 × 7/16	6½	0	7	1/6	7/8 × 1	1 × 1 1/8	15	3	14	8/-
5/16 × 7/16	3/8 × 1/2	7¼	0	10	1/8	1 × 1 1/8	1 1/8 × 1 1/4	18½	4	4	10/6
3/8 × 7/16	7/16 × 1/2	7¼	0	10	1/8	1 × 1 1/4	1 1/8 × 1 3/8	19½	6	0	15/6
3/8 × 1/2	7/16 × 9/16	8	0	12	1/10	1 1/8 × 1 1/4	1 1/4 × 1 3/8	19½	6	0	15/6
7/16 × 1/2	1/2 × 9/16	8¾	1	0	2/-	1 1/4 × 1 3/8	1 3/8 × 1 1/2	21½	6	12	22/9
7/16 × 9/16	1/2 × 5/8	8¾	1	0	2/4	1 1/4 × 1 1/2	1 3/8 × 1 5/8	22½	7	8	30/6
1/2 × 9/16	9/16 × 5/8	8¾	1	0	2/4	1 3/8 × 1 1/2	1 1/2 × 1 5/8	22½	7	8	30/6

Pattern Z. Metric Sizes

Milled Opening, m/m.	Approx. Extreme Length, Ins.	Approx. Weight Ozs.	Price Each	Milled Opening, m/m.	Approx. Extreme Length, Ins.	Approx. Weight Ozs.	Price Each	Milled Opening, m/m.	Approx. Extreme Length, Ins.	Approx. Weight Ozs.	Price Each
6–8	4	2	/9	14–16	5½	4	1/2	20–22	7¼	10	1/8
7–9	4	2	/9	16–18	6½	7	1/6	21–23	8¼	16	2/-
10–12	4	2	/9	17–19	6½	7	1/6	22–25	8¼	16	2/4
11–13	5	3	/11	18–20	7¼	10	1/8	23–26	8¾	16	2/4
12–14	5	3	/11	19–21	7¼	10	1/8	27–30	10	24	2/11
13–15	5½	4	1/2								



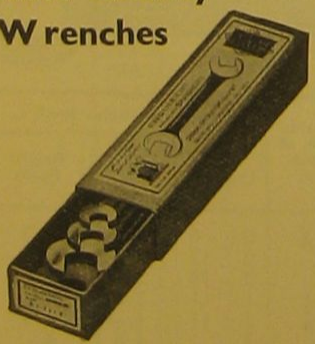
Single-End Wrenches

First Quality. Smooth Gun Black Finish. Polished Heads.

Pattern Y. Whitworth Sizes

Whitworth Bolts In.	B.S.F. Bolt Size In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Each	Whitworth Bolts In.	B.S.F. Bolt Size In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Each
3/16	1/4	4¾	0	3	/8	3/4	7/8	11½	1	14	3/5
1/4	5/32 5/16	4¾	0	4	/10	13/16	15/16	13½	2	11	5/3
5/16	3/8	5½	0	5	1/1	7/8	1	13½	2	11	5/3
3/8	7/16	6⅜	0	7	1/2	1	1 1/16	15½	3	10	7/-
7/16	1/2	7¼	0	9	1/6	1 1/8	1 1/4	16⅜	4	8	9/3
1/2	9/16	8	0	12	1/8	1 1/4	1 3/8	18	5	8	12/-
5/8	11/16	9	1	0	2/-	1 3/8	1 1/2	20	7	8	15/9
11/16	3/4 13/16	9½	1	3	2/7	1 1/2	1 5/8	22	8	8	20/-
3/4		11½	1	14	3/5						

Boxed Sets of First Quality Wrenches



Containing Four Double-ended Wrenches covering eight Whitworth sizes:—

1/4 × 3/16, 1/4 × 5/16, 3/8 × 7/16, 1/2 × 9/16 in.

Price ... ... 6/- per set

The following Table gives Spanner Jaw Openings for Whitworth Standard Finished Nuts.

Whitworth Bolt Size ...	1/4	5/16	3/8	7/16	1/2	9/16		in.
Min. Opening of Jaws ...	·527	·602	·712	·822	·922	·1012		,,
Whitworth Bolt Size ...	5/8	11/16	3/4	13/16	7/8	1	1 1/8	,,
Min. Opening of Jaws ...	1·102	1·202	1·302	1·392	1·482	1·672	1·864	,,
Whitworth Bolt Size ...	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	,,
Min. Opening of Jaws ...	2·054	2·224	2·414	2·584	2·764	3·024	3·154	,,

ENGINEERS' WRENCHES

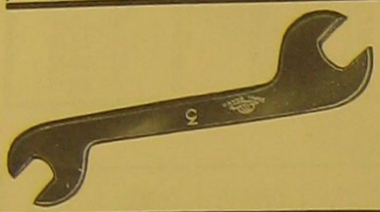
Snail Brand Wrenches (British Made)

Double-Ended Wrenches

Standard Quality. Jaws machined and hardened.

Pattern H. 30° Angle Heads

Whitworth Standard Bolts In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Per Doz. Black	Price Per Doz. Polished Heads	Whitworth Standard Bolts In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Per Doz. Black	Price Per Doz. Polished Heads
$\frac{1}{8}\times\frac{3}{16}$	4	0	2	4/-	5/3	$\frac{11}{16}\times\frac{13}{16}$	11	1	12	20/6	25/-
$\frac{3}{16}\times\frac{1}{4}$	5	0	3	4/6	6/-	$\frac{3}{4}\times\frac{7}{8}$	$13\frac{1}{2}$	2	12	22/-	26/6
$\frac{1}{4}\times\frac{5}{16}$	$5\frac{1}{2}$	0	4	5/3	6/6	$\frac{3}{4}\times 1$	15	3	8	33/6	40/6
$\frac{1}{4}\times\frac{3}{8}$	6	0	5	6/-	7/6	$\frac{7}{8}\times 1$	15	3	8	33/6	40/6
$\frac{5}{16}\times\frac{3}{8}$	$6\frac{1}{4}$	0	6	6/6	8/6	$1\times 1\frac{1}{8}$	$18\frac{1}{2}$	4	4	40/-	48/6
$\frac{3}{8}\times\frac{7}{16}$	$7\frac{1}{2}$	0	8	8/6	10/3	$1\frac{1}{8}\times 1\frac{1}{4}$	$19\frac{1}{2}$	6	0	52/-	64/6
$\frac{3}{8}\times\frac{1}{2}$	8	0	9	8/9	11/-	$1\frac{1}{4}\times 1\frac{3}{8}$	$21\frac{1}{2}$	6	12	63/6	77/6
$\frac{7}{16}\times\frac{1}{2}$	$8\frac{3}{4}$	0	13	10/-	12/6	$1\frac{3}{8}\times 1\frac{1}{2}$	$22\frac{1}{2}$	7	6	74/-	90/-
$\frac{7}{16}\times\frac{9}{16}$	$8\frac{3}{4}$	0	13	11/6	13/9	$1\frac{1}{2}\times 1\frac{5}{8}$	$23\frac{1}{2}$	8	8	131/-	153/6
$\frac{1}{2}\times\frac{9}{16}$	$8\frac{3}{4}$	0	13	11/6	13/9	$1\frac{5}{8}\times 1\frac{3}{4}$	26	11	8	202/-	228/-
$\frac{1}{2}\times\frac{5}{8}$	$9\frac{1}{4}$	1	2	12/6	15/6	$1\frac{3}{4}\times 1\frac{7}{8}$	27	16	0	215/-	250/-
$\frac{9}{16}\times\frac{5}{8}$	$9\frac{3}{4}$	1	2	13/9	16/6	$1\frac{3}{4}\times 2$	28	16	8	228/-	270/-
$\frac{9}{16}\times\frac{11}{16}$	$9\frac{3}{4}$	1	6	14/3	17/-	$1\frac{7}{8}\times 2$	28	16	8	235/-	286/-
$\frac{5}{8}\times\frac{3}{4}$	11	1	8	17/3	20/-						



Tackler or Textile Machine Wrenches

Pattern T. Polished all over. **First Quality.**

Size	Openings Milled In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Per Doz.	Size	Openings Milled In.	Length Overall Ins.	Weight Lbs.	Weight Ozs.	Price Per Doz.
00	$\frac{1}{4}\times\frac{5}{16}$	$4\frac{1}{4}$	0	2	12/6	5	$\frac{7}{8}\times 1$	$9\frac{3}{8}$	0	15	30/6
0	$\frac{3}{8}\times\frac{7}{16}$	$4\frac{1}{4}$	0	2	12/6	6	$1\times 1\frac{1}{8}$	$10\frac{7}{8}$	1	6	38/6
1	$\frac{3}{8}\times\frac{1}{2}$	5	0	3	15/-	7	$1\frac{1}{8}\times 1\frac{1}{4}$	11	1	9	46/-
2	$\frac{1}{2}\times\frac{5}{8}$	$5\frac{3}{4}$	0	5	18/3	8	$1\frac{1}{4}\times 1\frac{3}{8}$	13	2	8	58/-
3	$\frac{5}{8}\times\frac{11}{16}$	7	0	7	20/6	9	$1\frac{3}{8}\times 1\frac{1}{2}$	14	3	0	70/-
4	$\frac{11}{16}\times\frac{7}{8}$	8	0	12	26/-						

Thin Head Check Nut Wrenches

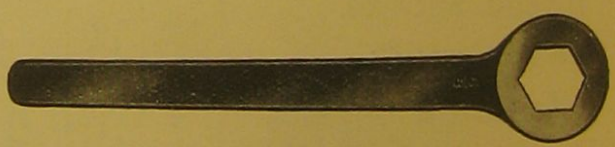
Pattern W. Whitworth Double-ended, 15° Angle Heads.
First Quality. Smooth Gun Black with Polished Heads.

Whitworth Bolt Size In.	B.S.F. Bolt Size In.	Length Overall Ins.	Thickness of Head Ins.	Weight Lbs.	Weight Ozs.	Price Each
$\frac{3}{16}\times\frac{1}{4}$	$\frac{1}{4}\times\frac{5}{16}$	$4\frac{1}{2}$	$\frac{3}{16}$	0	$1\frac{1}{2}$	1/4
$\frac{3}{16}\times\frac{5}{16}$	$\frac{1}{4}\times\frac{3}{8}$	$4\frac{1}{2}$	$\frac{3}{16}$	0	$1\frac{1}{2}$	1/4
$\frac{1}{4}\times\frac{5}{16}$	$\frac{5}{16}\times\frac{3}{8}$	$4\frac{1}{2}$	$\frac{3}{16}$	0	$1\frac{1}{2}$	1/4
$\frac{1}{4}\times\frac{3}{8}$	$\frac{5}{16}\times\frac{7}{16}$	$5\frac{1}{2}$	$\frac{7}{32}$	0	3	1/6
$\frac{5}{16}\times\frac{3}{8}$	$\frac{3}{8}\times\frac{7}{16}$	$5\frac{1}{2}$	$\frac{7}{32}$	0	3	1/6
$\frac{5}{16}\times\frac{7}{16}$	$\frac{3}{8}\times\frac{1}{2}$	$5\frac{1}{2}$	$\frac{7}{32}$	0	3	1/6
$\frac{3}{8}\times\frac{7}{16}$	$\frac{7}{16}\times\frac{1}{2}$	7	$\frac{7}{32}$	0	$4\frac{1}{2}$	1/10
$\frac{3}{8}\times\frac{1}{2}$	$\frac{7}{16}\times\frac{9}{16}$	7	$\frac{7}{32}$	0	$4\frac{1}{2}$	1/10
$\frac{7}{16}\times\frac{1}{2}$	$\frac{1}{2}\times\frac{9}{16}$	7	$\frac{7}{32}$	0	$4\frac{1}{2}$	1/10
$\frac{7}{16}\times\frac{9}{16}$	$\frac{1}{2}\times\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	0	7	2/6
$\frac{1}{2}\times\frac{9}{16}$	$\frac{9}{16}\times\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	0	7	2/6
$\frac{1}{2}\times\frac{5}{8}$	$\frac{9}{16}\times\frac{11}{16}$	$8\frac{1}{2}$	$\frac{1}{4}$	0	7	2/6
$\frac{9}{16}\times\frac{5}{8}$	$\frac{5}{8}\times\frac{11}{16}$	$10\frac{1}{2}$	$\frac{9}{32}$	0	14	3/9
$\frac{9}{16}\times\frac{11}{16}$	$\frac{5}{8}\times\frac{3}{4}$	$10\frac{1}{2}$	$\frac{9}{32}$	0	14	3/9
$\frac{9}{16}\times\frac{3}{4}$	$\frac{5}{8}\times\frac{7}{8}$	$10\frac{1}{2}$	$\frac{9}{32}$	0	14	3/9
$\frac{5}{8}\times\frac{3}{4}$	$\frac{11}{16}\times\frac{7}{8}$	$10\frac{1}{2}$	$\frac{9}{32}$	0	14	3/9
$\frac{11}{16}\times\frac{13}{16}$	$\frac{3}{4}\times\frac{15}{16}$	$12\frac{1}{2}$	$\frac{13}{32}$	1	10	5/6
$\frac{5}{8}\times\frac{7}{8}$	$\frac{11}{16}\times 1$	$12\frac{1}{2}$	$\frac{13}{32}$	1	10	5/6
$\frac{3}{4}\times\frac{7}{8}$	$\frac{7}{8}\times 1$	$12\frac{1}{2}$	$\frac{13}{32}$	1	10	5/6
$\frac{3}{4}\times 1$	$\frac{7}{8}\times 1\frac{1}{8}$	$12\frac{1}{2}$	$\frac{13}{32}$	1	10	5/6

Single-end Thin Head Check Nut Wrenches can be supplied.
Prices on application.

Hexagon Box Wrenches

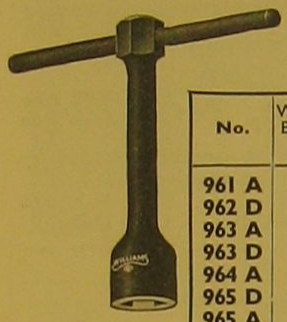
Pattern N.



Whitworth Bolt Ins.	Extreme Length Ins.	Outside diam. of Head Ins.	Weight Each Lbs.	Weight Each Ozs.	Price Each Black	Price Each Bright Faces
$\frac{3}{8}$	6	$1\frac{5}{8}$	0	8	2/-	2/3
$\frac{1}{2}$	10	2	0	13	2/3	2/6
$\frac{5}{8}$	10	2	0	13	3/-	3/6
$\frac{3}{4}$	$13\frac{1}{4}$	$2\frac{1}{2}$	1	11	3/6	4/-
$\frac{7}{8}$	$13\frac{1}{4}$	$2\frac{1}{2}$	1	11	4/-1	4/6
1	$16\frac{1}{8}$	3	3	2	4/6	5/-
$1\frac{1}{8}$	$16\frac{1}{2}$	3	3	2	5/3	6/-
$1\frac{1}{4}$	$19\frac{3}{4}$	$3\frac{1}{2}$	4	11	6/-	6/9

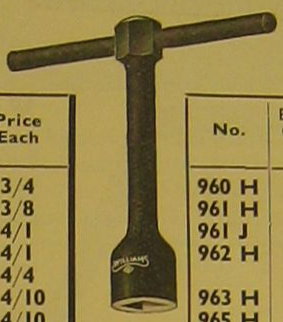
Williams' T Handle Socket Wrenches (Made in U.S.A.)

Finished Wrenches are broached, hardened, smoothed surface, black enamelled



For Hexagon Nuts, etc.

No.	Whit. Hex. Bolt Sizes Ins.	Opening Across Flats, Ins.	Dia. of Head Ins.	Overall Length Ins.	Price Each
961 A	1/8	21/64	1/2	4 1/4	3/4
962 D	—	25/64	5/8	4 1/2	3/8
963 A	3/16	27/64	11/16	4 7/8	4/1
963 D	—	29/64	11/16	4 7/8	4/1
964 A	1/4	33/64	3/4	5 1/4	4/4
965 D	—	37/64	7/8	5 3/4	4/10
965 A	5/16	39/64	7/8	5 3/4	4/10
966 D	—	41/64	1	6 1/8	5/3
967 A	3/8	45/64	1 1/8	6 1/2	5/11
967 D	—	49/64	1 1/8	6 1/2	5/11
968 A	7/16	51/64	1 1/4	7	6/5
968 D	—	53/64	1 1/4	7	6/5
969 A	1/2	57/64	1 3/8	7 3/8	7/3
970 A	9/16	63/64	1 1/2	7 7/8	8/2
970 D	—	1 1/64	1 1/2	7 7/8	8/2
971 A	5/8	1 5/64	1 5/8	8 1/4	9/2
971 D	—	1 5/32	1 5/8	8 1/4	9/2
973 A	3/4	1 9/32	1 7/8	9 1/8	12/6
974 D	—	1 13/32	2	9 1/2	14/2
975 A	7/8	1 15/32	2 1/8	10	15/5
975 D	—	1 17/32	2 1/8	10	15/5
976 A	1	1 21/32	2 3/8	10 3/8	17/8
977 A	1 1/8	1 27/32	2 5/8	10 7/8	20/-
978 A	1 1/4	2 1/32	2 7/8	11 3/8	23/9
979 A	1 3/8	2 7/32	3	11 7/8	30/5
980 A	1 1/2	2 13/32	3 5/16	12 1/2	40/5



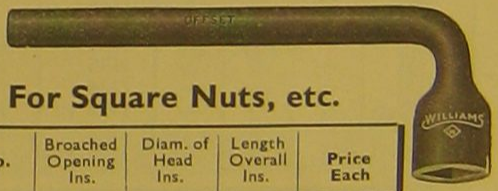
For Square Nuts, etc.

No.	Broached Opening Ins.	Diam. of Head Ins.	Length Overall Ins.	Price Each
960 H	1/8	5/16	3 1/4	2/11
961 H	13/64	1/2	4 1/4	3/4
961 J	17/64	1/2	4 1/4	3/4
962 H	21/64	5/8	4 1/2	3/8
963 H	25/64	11/16	4 7/8	4/1
965 H	29/64	7/8	5 3/4	4/10
966 H	33/64	1	6 1/8	5/3
967 H	37/64	1 1/8	6 1/2	5/11
968 H	41/64	1 1/4	7	6/5
968 P	45/64	1 1/4	7	6/5
969 H	49/64	1 3/8	7 3/8	7/3
971 H	57/64	1 5/8	8 1/4	9/2
973 H	1 1/64	1 7/8	9 1/8	12/6
974 H	1 5/32	2	9 1/2	14/2
976 H	1 9/32	2 3/8	10 3/8	17/8
977 N	1 13/32	2 5/8	10 7/8	20/-
977 X	1 15/32	2 5/8	10 7/8	20/-
977 P	1 17/32	2 5/8	10 7/8	20/-
978 P	1 21/32	2 7/8	11 3/8	23/9
979 X	1 27/32	3	11 7/8	30/5

Williams' Offset Handle Socket Wrenches (Made in U.S.A.)

For Hexagon Nuts, etc.

No.	Whit. Hex. Bolt Sizes Ins.	Opening Across Flats, Ins.	Dia. of Head Ins.	Overall Length Ins.	Price Each
261 A	1/8	21/64	1/2	3 3/8	2/6
262 D	—	25/64	5/8	3 7/8	2/9
263 A	3/16	27/64	11/16	4 5/16	3/-
263 D	—	29/64	11/16	4 5/16	3/-
264 A	1/4	33/64	3/4	5 1/8	3/3
265 D	—	37/64	7/8	5 7/8	3/8
265 A	5/16	39/64	7/8	5 7/8	3/8
266 D	—	41/64	1	6 1/4	4/-
267 A	3/8	45/64	1 1/8	6 3/4	4/6
267 D	—	49/64	1 1/8	6 3/4	4/6
268 A	7/16	51/64	1 1/4	7 1/2	5/-
268 D	—	53/64	1 1/4	7 1/2	5/-
269 A	1/2	57/64	1 3/8	8 3/8	5/9
270 A	9/16	63/64	1 1/2	9 1/8	6/6
270 D	—	1 1/64	1 1/2	9 1/8	6/6
271 A	5/8	1 5/64	1 5/8	10	7/6
271 D	—	1 5/32	1 5/8	10	7/6
273 A	3/4	1 9/32	1 7/8	11 5/8	10/-
274 D	—	1 13/32	2	12 3/8	11/3
275 A	7/8	1 15/32	2 1/8	13 1/4	12/6
275 D	—	1 17/32	2 1/8	13 1/4	12/6
276 A	1	1 21/32	2 3/8	14 7/8	14/4
277 A	1 1/8	1 27/32	2 5/8	16 1/2	16/3
278 A	1 1/4	2 1/32	2 7/8	18 1/4	20/-
279 A	1 3/8	2 7/32	3	20	26/3
280 A	1 1/2	2 13/32	3 5/16	21 3/4	35/-



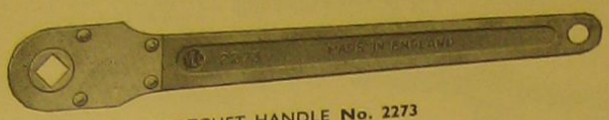
For Square Nuts, etc.

No.	Broached Opening Ins.	Diam. of Head Ins.	Length Overall Ins.	Price Each
260 H	1/8	5/16	2 3/4	2/3
261 H	13/64	1/2	3 3/8	2/6
261 J	17/64	1/2	3 3/8	2/6
262 H	21/64	5/8	3 7/8	2/9
263 H	25/64	11/16	4 5/16	3/-
265 H	29/64	7/8	5 1/8	3/8
266 H	33/64	1	6 1/4	4/-
267 H	37/64	1 1/8	6 3/4	4/6
268 H	41/64	1 1/4	7 1/2	5/-
268 P	45/64	1 1/4	7 1/2	5/-
269 H	49/64	1 3/8	8 3/8	5/9
271 H	57/64	1 5/8	10	7/6
273 H	1 1/64	1 7/8	11 5/8	10/-
274 H	1 5/32	2	12 3/8	11/3
276 H	1 9/32	2 3/8	14 7/8	14/4
277 N	1 13/32	2 5/8	16 1/2	16/3
277 X	1 15/32	2 5/8	16 1/2	16/3
277 P	1 17/32	2 5/8	16 1/2	16/3
278 P	1 21/32	2 7/8	18 1/4	20/-
279 X	1 27/32	3	20	26/3

HEXAGON SOCKET WRENCHES, ETC.

VLC. Ratchet Handle, No. 2273

With Half-inch Square Drive



RATCHET HANDLE No. 2273

Strong, but light construction, giving ample leverage. Ratchet mechanism totally enclosed. Used with No. 2281 Coupler to attach sockets or adaptor fittings. Ratchet reversible by turning coupler. Length, 10½ ins. **Price** ... **12/6 each**

Coupler, No. 2281. 1⅜ ins long ... ... **1/- each**

COUPLER No. 2281

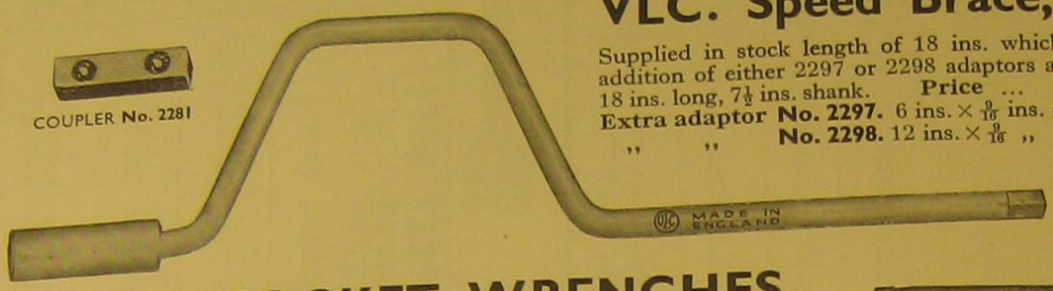
VLC. Speed Brace, No. 2242

Supplied in stock length of 18 ins. which can be extended by addition of either 2297 or 2298 adaptors as required.

18 ins. long, 7½ ins. shank. **Price** ... ... **3/6 each**

Extra adaptor **No. 2297.** 6 ins. × $\frac{9}{16}$ ins. dia. ... **3/6** ,,

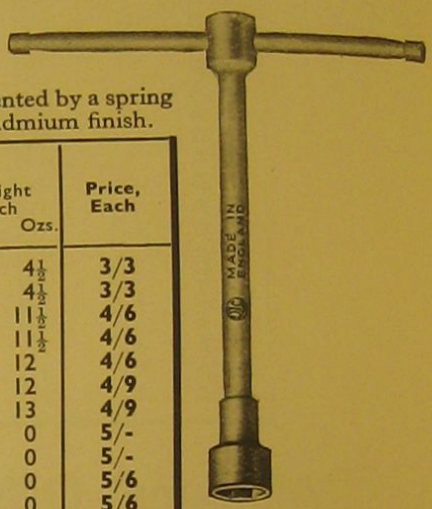
,, ,, **No. 2298.** 12 ins. × $\frac{9}{16}$,, ,, ... **5/-** ,,



VLC. SOCKET WRENCHES

With Sliding "T" Handle

The bars of these wrenches are a sliding fit but too easy movement and loss are prevented by a spring loaded plunger. Chrome Vanadium, heat treated sockets, all sizes tapered. All Cadmium finish.

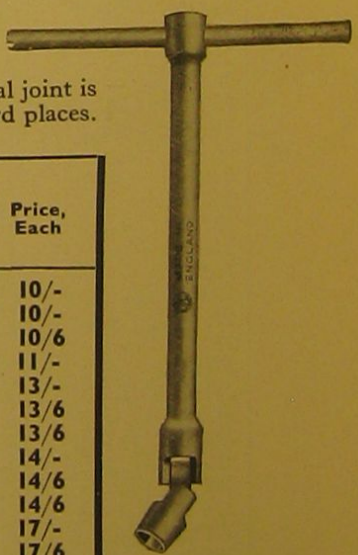


Size Across Flats Ins.	Equivalent Standard Size Nuts			No.	Overall Length Ins.	Shank Dia. Ins.	Bar Handle		Weight Each		Price, Each
	Whit.	S.A.E.	U.S.S.				Dia. Ins.	Length Ins.	Lbs.	Ozs.	
·338	$\frac{1}{8}$	—	—	1111 W	6	$\frac{3}{8}$	$\frac{5}{16}$	3		4½	3/3
	—	—	—	1112	6	$\frac{3}{8}$	$\frac{5}{16}$	3		4½	3/3
$\frac{3}{8}$	—	—	—	1114	8	$\frac{1}{2}$	$\frac{3}{8}$	7		11½	4/6
$\frac{7}{16}$	—	$\frac{1}{4}$	—	1114 W	8	$\frac{1}{2}$	$\frac{3}{8}$	7		11½	4/6
·448	$\frac{3}{16}$	—	—	1116	8	$\frac{1}{2}$	$\frac{3}{8}$	7		12	4/6
$\frac{1}{2}$	—	$\frac{5}{16}$	$\frac{1}{4}$	1117 W	8	$\frac{1}{2}$	$\frac{3}{8}$	7		12	4/9
·525	$\frac{1}{4}$	—	—	1118	8	$\frac{1}{2}$	$\frac{3}{8}$	7		13	4/9
$\frac{9}{16}$	—	$\frac{3}{8}$	$\frac{5}{16}$	1119	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	5/-
$\frac{19}{32}$	—	—	—	1119 W	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	5/-
·600	$\frac{5}{16}$	—	—	1120	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	5/6
$\frac{5}{8}$	—	$\frac{7}{16}$	—	1121	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	5/6
$\frac{21}{32}$	—	—	—	1122	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	6/-
$\frac{11}{16}$	—	—	$\frac{3}{8}$	1123 W	8	$\frac{1}{2}$	$\frac{7}{16}$	8	1	0	6/-
·710	$\frac{3}{8}$	—	—	1124	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	4	6/6
$\frac{3}{4}$	—	$\frac{1}{2}$	—	1125	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	4	6/6
$\frac{25}{32}$	—	—	$\frac{7}{16}$	1126	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	4	7/-
$\frac{13}{16}$	—	—	—	1126 W	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	5	7/6
·820	$\frac{7}{16}$	—	—	1128	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	5	8/-
$\frac{7}{8}$	—	$\frac{9}{16}$	$\frac{1}{2}$	1129 W	10	$\frac{9}{16}$	$\frac{7}{16}$	9	1	5	8/6
·920	$\frac{1}{2}$	—	—								

VLC. Socket Wrenches

With Sliding "T" Handle and Universal Jointed Socket

A similar wrench to the 1100 Series above, but with universal jointed socket. Universal joint is "friction held," by spring loaded plunger, permitting easy entering of nuts in awkward places. Chrome Vanadium heat treated sockets, all sizes tapered. All Cadmium finish.

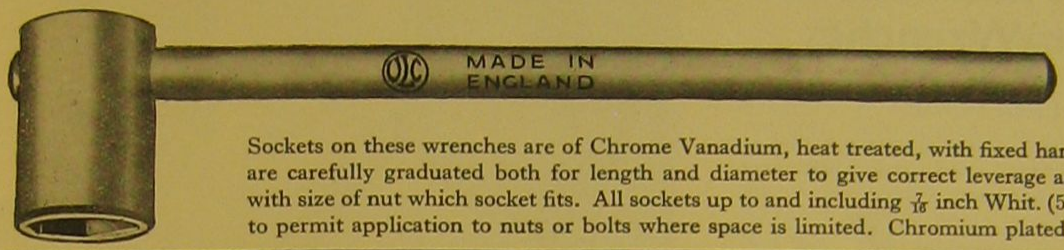


Size Across Flats Ins.	Equivalent Standard Size Nuts			No.	Overall Length Ins.	Shank Dia. Ins.	Bar Handle		Weight Each		Price, Each
	Whit.	S.A.E.	U.S.S.				Dia. Ins.	Length Ins.	Lbs.	Ozs.	
$\frac{7}{16}$	—	$\frac{1}{4}$	—	2514	9	$\frac{1}{2}$	$\frac{3}{8}$	7		12	10/-
·448	$\frac{3}{16}$	—	—	2514 W	9	$\frac{1}{2}$	$\frac{3}{8}$	7		12	10/-
$\frac{1}{2}$	—	$\frac{5}{16}$	$\frac{1}{4}$	2516	9	$\frac{1}{2}$	$\frac{3}{8}$	7		12	10/6
·525	$\frac{1}{4}$	—	—	2517 W	9	$\frac{1}{2}$	$\frac{3}{8}$	7		12	11/-
$\frac{9}{16}$	—	$\frac{3}{8}$	$\frac{5}{16}$	2518	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	4	13/-
$\frac{19}{32}$	—	—	—	2519	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	4	13/6
·600	$\frac{5}{16}$	—	—	2519 W	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	4	13/6
$\frac{5}{8}$	—	$\frac{7}{16}$	—	2520	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	5	14/-
$\frac{11}{16}$	—	—	$\frac{3}{8}$	2522	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	5	14/6
·710	$\frac{3}{8}$	—	—	2523 W	11	$\frac{5}{8}$	$\frac{7}{16}$	8	1	5	14/6
$\frac{3}{4}$	—	$\frac{1}{2}$	—	2524	13½	$\frac{11}{16}$	$\frac{7}{16}$	9	1	10	17/-
·820	$\frac{7}{16}$	—	—	2526 W	13½	$\frac{11}{16}$	$\frac{7}{16}$	9	1	11	17/6
$\frac{7}{8}$	—	$\frac{9}{16}$	$\frac{1}{2}$	2528	13½	$\frac{11}{16}$	$\frac{7}{16}$	9	1	12	18/-
·920	$\frac{1}{2}$	—	—	2529 W	13½	$\frac{11}{16}$	$\frac{7}{16}$	9	1	12	18/6

HEXAGON SOCKET WRENCHES

VLC. Heavy Duty Hexagon Wrenches

Offset Type with Secured Handles



Sockets on these wrenches are of Chrome Vanadium, heat treated, with fixed handles. Bar handles are carefully graduated both for length and diameter to give correct leverage and rigidity to deal with size of nut which socket fits. All sockets up to and including $\frac{7}{16}$ inch Whit. (5326W) are tapered to permit application to nuts or bolts where space is limited. Chromium plated finish.

Socket Sizes				No.	Socket		Handle		Weight Each		Price Each
Across Flats Inches	Equivalent Standard Sizes				Diam. Inches	Length Inches	Diam. Inches	Length Inches	Lbs.	Ozs.	
	Whit.	S.A.E.	U.S.S.								
$\frac{7}{16}$	—	$\frac{1}{4}$	—	5314	$\frac{3}{4}$	$1\frac{1}{4}$	$\frac{3}{8}$	7		$4\frac{1}{2}$	2/6
·448	$\frac{3}{16}$	—	—	5314W	$\frac{3}{4}$	$1\frac{1}{4}$	$\frac{3}{8}$	7		$4\frac{1}{2}$	2/6
$\frac{1}{2}$	—	$\frac{5}{16}$	$\frac{1}{4}$	5316	$\frac{13}{16}$	$1\frac{1}{2}$	$\frac{3}{8}$	7		$5\frac{1}{2}$	2/9
·525	$\frac{1}{4}$	—	—	5317W	$\frac{13}{16}$	$1\frac{1}{2}$	$\frac{7}{16}$	8		7	2/9
$\frac{9}{16}$	—	$\frac{3}{8}$	$\frac{5}{16}$	5318	$\frac{7}{8}$	$1\frac{3}{4}$	$\frac{7}{16}$	8		$8\frac{1}{2}$	2/9
$\frac{19}{32}$	—	—	—	5319	$\frac{15}{16}$	$1\frac{3}{4}$	$\frac{7}{16}$	9		9	3/-
·600	$\frac{5}{16}$	—	—	5319W	$\frac{15}{16}$	$1\frac{3}{4}$	$\frac{7}{16}$	9		9	3/-
$\frac{5}{8}$	—	$\frac{7}{16}$	—	5320	1	$1\frac{3}{4}$	$\frac{1}{2}$	10		12	3/3
$\frac{21}{32}$	—	—	—	5321	1	$1\frac{3}{4}$	$\frac{1}{2}$	10		12	3/3
$\frac{11}{16}$	—	—	$\frac{3}{8}$	5322	$1\frac{1}{16}$	$1\frac{7}{8}$	$\frac{9}{16}$	11	1	0	3/6
·710	$\frac{3}{8}$	—	—	5323W	$1\frac{1}{16}$	$1\frac{7}{8}$	$\frac{9}{16}$	11	1	0	3/6
$\frac{3}{4}$	—	$\frac{1}{2}$	—	5324	$1\frac{1}{8}$	2	$\frac{9}{16}$	11	1	$1\frac{1}{4}$	4/-
$\frac{13}{16}$	—	—	—	5326	$1\frac{3}{16}$	$2\frac{1}{8}$	$\frac{5}{8}$	12	1	$4\frac{1}{2}$	4/3
·820	$\frac{7}{16}$	—	—	5326W	$1\frac{3}{16}$	$2\frac{1}{8}$	$\frac{5}{8}$	12	1	$4\frac{1}{2}$	4/3
$\frac{7}{8}$	—	$\frac{9}{16}$	$\frac{1}{2}$	5328	$1\frac{1}{4}$	$2\frac{1}{8}$	$\frac{5}{8}$	12	1	6	4/6
·920	$\frac{1}{2}$	—	—	5329W	$1\frac{3}{8}$	$2\frac{1}{4}$	$\frac{5}{8}$	12	1	7	5/6
$\frac{15}{16}$	—	$\frac{5}{8}$	—	5330	$1\frac{3}{8}$	$2\frac{1}{4}$	$\frac{5}{8}$	12	1	7	5/9
1·010	$\frac{9}{16}$	—	—	5332W	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{11}{16}$	$13\frac{1}{2}$	1	15	6/3
$1\frac{1}{16}$	—	$\frac{3}{4}$	$\frac{5}{8}$	5334	$1\frac{5}{8}$	$2\frac{1}{2}$	$\frac{11}{16}$	$13\frac{1}{2}$	2	$1\frac{1}{2}$	7/6
1·100	$\frac{5}{8}$	—	—	5335W	$1\frac{5}{8}$	$2\frac{1}{2}$	$\frac{11}{16}$	$13\frac{1}{2}$	2	$1\frac{1}{2}$	7/6

Larger Sizes can be supplied. Particulars sent on request.

VLC. "T" Handle Type with Sliding Handle

The bar handles are a sliding fit, too easy movement is obviated by a spring loaded plunger. Handles are carefully graduated both for length and diameter to give adequate leverage and rigidity. Chromium plated finish.

Socket Sizes				No.	Overall Length	Shank Diam.	Handle		Weight Each		Price Each
Across Flats Inches	Equivalent Standard Sizes Nuts				Inches	Inches	Diam. Inches	Length Inches	Lbs.	Ozs.	
	Whit.	S.A.E.	U.S.S.								
·710	$\frac{3}{8}$	—	—	6523W	$11\frac{1}{2}$	$\frac{5}{8}$	$\frac{1}{2}$	12	2	0	9/-
$\frac{3}{4}$	—	$\frac{1}{2}$	—	6524	$11\frac{9}{16}$	$\frac{5}{8}$	$\frac{1}{2}$	12	2	2	9/9
$\frac{13}{16}$	—	—	—	6526	$11\frac{5}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	12	2	4	10/-
·820	$\frac{7}{16}$	—	—	6526W	$11\frac{5}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	12	2	4	10/-
$\frac{7}{8}$	—	$\frac{9}{16}$	$\frac{1}{2}$	6528	$11\frac{11}{16}$	$\frac{5}{8}$	$\frac{1}{2}$	12	2	5	10/6
·920	$\frac{1}{2}$	—	—	6529W	$11\frac{11}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	0	13/6
$\frac{15}{16}$	—	$\frac{5}{8}$	—	6530	$11\frac{3}{4}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	0	13/9
1	—	$\frac{11}{16}$	—	6532	$11\frac{3}{4}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	2	14/3
1·010	$\frac{9}{16}$	—	—	6532W	$11\frac{3}{4}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	2	14/3
$1\frac{1}{16}$	—	$\frac{3}{4}$	$\frac{5}{8}$	6534	$11\frac{13}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	4	15/-
1·100	$\frac{5}{8}$	—	—	6535W	$11\frac{13}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	15	4	4	15/-
$1\frac{1}{8}$	—	—	—	6536	$11\frac{7}{8}$	$1\frac{1}{8}$		18	6	0	17/6
1·201	$\frac{11}{16}$	—	—	6538W	$11\frac{7}{8}$	$1\frac{1}{8}$		18	6	0	17/6
$1\frac{1}{4}$	—	$\frac{7}{8}$	$\frac{3}{4}$	6540	$11\frac{15}{16}$	$1\frac{1}{8}$		18	6	6	19/-
1·301	$\frac{3}{4}$	—	—	6542W	$11\frac{15}{16}$	$1\frac{1}{8}$		18	6	6	19/-
$1\frac{5}{16}$	—	—	—	6542	$11\frac{15}{16}$	$1\frac{1}{8}$		18	6	6	19/-
$1\frac{3}{8}$	—	—	—	6544	12	$1\frac{1}{8}$		18	6	14	20/-

Larger Sizes can be supplied. Particulars sent on request.

VLC Sockets and Socket Wrenches

These tools are made from chrome vanadium, carefully heat treated and are chrome finished.

The range of handles and fittings are made with ½ inch square drive and a spring loaded friction ball ensures positive attachment of sockets.

These tools are interchangeable with all sockets and attachments with ½ inch square socket fitting at present marketed.

SQUARE DRIVE DUOHEX SOCKETS

DOUBLE BROACHED. DOUBLE HEXAGON CHROMIUM FINISH

Socket Size Across Flats. Inches	Equivalents Whit.	U.S.S.	S.A.E.	Bihexagon No.	Price Each
—	3/16	—	—	2114 W	2/-
1/8	—	1/4	5/16	2116	2/-
·525	1/4	—	—	2117 W	2/-
9/16	—	—	3/8	2118	2/3
19/32	—	5/16	—	2119	2/4
·600	5/16	—	—	2119 W	2/4
5/8	—	—	7/16	2120	2/6
11/16	—	3/8	—	2122	2/9
·710	3/8	—	—	2123 W	2/9
3/4	—	—	1/2	2124	2/10

Socket Size Across Flats. Inches	Equivalents Whit.	U.S.S.	S.A.E.	Bihexagon No.	Price Each
25/32	—	7/16	—	2125	2/10
13/16	—	—	—	2126	3/-
·820	7/16	—	—	2126 W	3/-
7/8	—	1/2	9/16	2128	3/3
·920	1/2	—	—	2129 W	3/3
15/16	—	—	5/8	2130	3/3
1	—	—	11/16	2132	3/10
1·010	9/16	—	—	2132 W	3/10
1 1/16	—	5/8	3/4	2134	4/3

VLC Duohex Ring Wrenches

SINGLE OFFSET TYPE, SERIES 4300

Made of chrome vanadium, with an accurately double-broached Duohex head of the same size at each end. Chromium finish.

No.	Size Across Flats Ins.	Equivalent Standard Size Nuts Whit.	S.A.E.	U.S.S.	Overall Length Ins.	Weight Each Ozs.	Price Each
4314	7/16	—	1/4	—	7	3	3/9
4314W	·448	3/16	—	—	7	3	3/9
4316	1/2	—	5/16	1/4	8	5	4/-
4317W	·525	1/4	—	—	8	5	4/-
4318	9/16	—	3/8	5/16	8½	7	4/3
4319W	·600	5/16	—	—	9	8	5/-
4320	5/8	—	7/16	—	9	8	5/-
4322	7/16	—	—	3/8	10	10	5/6
4323W	·710	3/8	—	—	10	10	5/6
4324	3/4	—	1/2	—	11	13	6/9

DOUBLE OFFSET TYPE, SERIES 4400

In this series both ends are offset and the double-broached Duohex heads are of different sizes.

The double hexagon permits full use with limited motion, and cranking gives access around flanges, etc. inaccessible to straight wrenches, chrome vanadium steel, Chromium finish.

No.	Socket Sizes Across Flats Ins.	Equivalent Whit.	Overall Length Ins.	Weight Lbs.	Weight Ozs.	Price Each
4417W	·448 and ·525	3/16 and 1/4	6	0	3½	3/6
4423W	·600 ,, ·710	5/16 ,, 3/8	8	0	7¾	4/9
4429W	·820 ,, ·920	7/16 ,, 1/2	10	1	0¾	6/6

"Apollo-Kromo" Tubular Box Spanners, Set No. 46A (British Made)

Made from 80-ton chrome molybdenum steel and hardened by a process which toughens them 200 per cent, these spanners are specially designed for hard workshop and garage use.

"Apollo-Kromo" Spanners are at least three times as strong as the ordinary steel box spanner but with about ten times the effective life.

Set No. 46A includes:—7 Double-ended, dull plated box spanners (Whitworth sizes, $\frac{1}{4}\times\frac{5}{16}$ in., $\frac{3}{8}\times\frac{7}{16}$ in., $\frac{1}{2}\times\frac{9}{16}$ in., $\frac{5}{8}\times\frac{11}{16}$ in., $\frac{3}{4}\times\frac{13}{16}$ in., $\frac{7}{8}\times 1$ in., $1\frac{1}{8}\times 1\frac{1}{4}$ in.) and 3 special tough steel tommy bars.

Price in Wooden Box **32/–**
,, **Cardboard Box** **24/–**

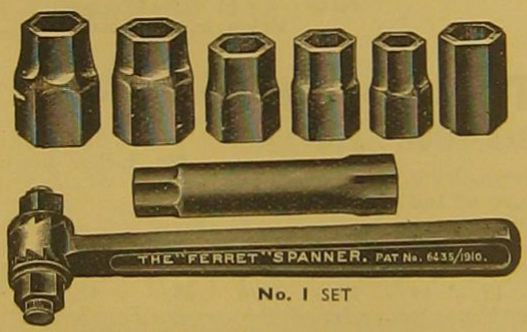
Separate Spanners

$\frac{1}{4}\times\frac{5}{16}\times 4\frac{1}{2}$ ins., **1/8 each**; $\frac{3}{8}\times\frac{7}{16}\times 4\frac{3}{4}$ ins., **1/11 each**
$\frac{1}{2}\times\frac{9}{16}\times 5$,, **2/5** ,, ; $\frac{5}{8}\times\frac{11}{16}\times 5\frac{1}{4}$,, **2/11** ,,
$\frac{3}{4}\times\frac{13}{16}\times 5\frac{1}{2}$,, **3/1** ,, ; $\frac{7}{8}\times 1\times 5\frac{3}{4}$,, **4/3** ,,
$1\frac{1}{8}\times 1\frac{1}{4}\times 6$,, **7/2** ,, ;

Tommy Bars

$\frac{3}{8}\times 6$ ins. **1½d. each.** $\frac{9}{16}\times 9$ ins. **4d. each**
$\frac{3}{4}\times 12$ ins. ... ... **8½d.** ,,
Motor Cycle Spanner, $\frac{1}{8}\times\frac{3}{16}\times 5$ ins., with tommy bar ... ... **1/–** ,,
Con.-rod Cap Spanner, $\frac{1}{4}\times\frac{5}{16}\times 8$ ins., with tommy bar ... ... **2/6** ,,

"Apollo-Ferret" Ratchet Box Spanners (British Made)



No. 1 SET

This Tool is convenient for obtaining a ratchet movement where the lever space is limited.

The head is a drop-steel stamping of remarkably small size, having a double row of machine-cut teeth all engaging simultaneously.

The "Ferret" works right and left hand by merely using the upper or lower side of the head.

The No. 1 Set comprises ratchet spanner, 6 tubular connection pieces for Whitworth nuts from $\frac{3}{16}$ to $\frac{1}{2}$ inch inclusive, and extension piece for nuts which cannot otherwise be reached.

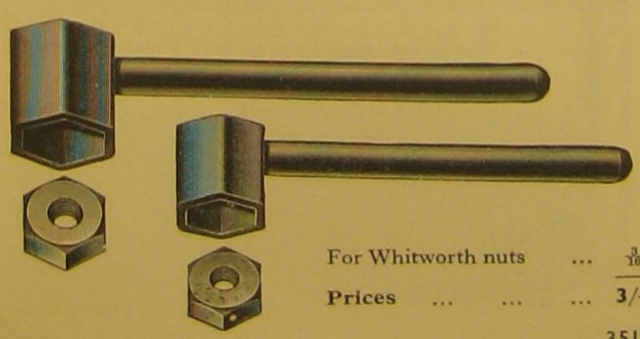
The No. 2 Set has ratchet spanner, 8 tubular connection pieces for $\frac{1}{2}$ inch to 1-inch Whitworth nuts, and extension piece.

The No. 3A Set is a combination of Sets Nos. 1 and 2 and consists of 2 ratchet spanners, 13 tubular connection pieces for Whitworth nuts from $\frac{3}{16}$ to 1 inch inclusive, and 2 extension pieces.

Prices

No. 1 Set in leather case, **10/9** **No. 2 Set** in wooden box, **29/6**
No. 3A Set in wooden box **36/9**

No. 2 SET



"Weasel" Box Spanners

(British Made)

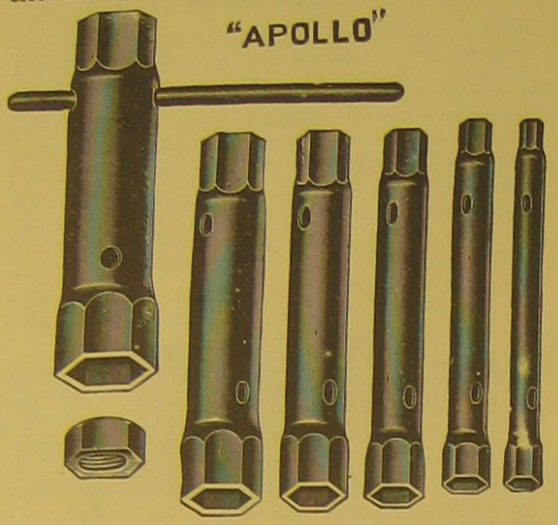
The "Weasel" is for use in awkward places, and being of tubular form will not slip from a nut when once placed in position. It is lighter, neater, and more effective than a flat spanner, and will not injure the corners of nuts.

Sizes and Prices

For Whitworth nuts ...	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1 in.
Prices	3/–	3/6	4/–	4/6	6/–	6/6	7/6	8/–	9/–	10/–	11/– per doz.

"Apollo" Tubular Box Spanners (British Made)

"Apollo" Spanners will be found to be of extra strength, with ends well and truly shaped so as to comfortably fit the nuts—important factors in the life of the Spanners, and one's satisfaction in using them. A comparison with others will readily disclose the superiority of the "Apollo" Spanner.



SET No. 10

SET No. 12

Set No. 10

Comprising six spanners and steel Tommy, covering twelve sizes of nuts, as below. Standard length of Spanners 7½ inches.

Sizes ... $\frac{1}{8}\times\frac{3}{16}$ $\frac{1}{4}\times\frac{5}{16}$ $\frac{3}{8}\times\frac{7}{16}$ $\frac{1}{2}\times\frac{9}{16}$ $\frac{5}{8}\times\frac{3}{4}$ $\frac{7}{8}\times1$ inch.
Price, in cardboard box ... 6/9 per set.

Set No. 14

Four Spanners and one Tommy (telescoping).
Sizes ... ... $\frac{3}{8}\times\frac{7}{16}$ $\frac{1}{2}\times\frac{9}{16}$ $\frac{5}{8}\times\frac{3}{4}$ $\frac{7}{8}\times1$ inch.
Price, in cardboard box ... 5/6 per set.

Set No. 15

Four Spanners and one Tommy (telescoping).
Sizes ... ... $\frac{1}{4}\times\frac{5}{16}$ $\frac{3}{8}\times\frac{7}{16}$ $\frac{1}{2}\times\frac{9}{16}$ $\frac{5}{8}\times\frac{3}{4}$ inch.
Price, in cardboard box ... 4/6 per set.

Set No. 16

Four Spanners and one Tommy (telescoping).
Sizes ... ... $\frac{1}{8}\times\frac{3}{16}$ $\frac{1}{4}\times\frac{5}{16}$ $\frac{3}{8}\times\frac{7}{16}$ $\frac{1}{2}\times\frac{9}{16}$ inch.
Price, in cardboard box ... 3/8 per set.

Set No. 12

With three Spanners (which telescope) and plain Tommy.
Sizes—For Bolts, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$ inch; Square Nut, $\frac{9}{32}$ inch.
Price, in cardboard box ... 1/6 per set.

Any other sizes or combinations of sizes supplied. Also made to Metric sizes.

Set No. 35

Three Spanners and a Tommy Bar.
Sizes—$\frac{3}{16}\times\frac{1}{4}$; $\frac{5}{16}\times\frac{3}{8}$; $\frac{7}{16}\times\frac{1}{2}$
Price, in cardboard box ... 2/– per set.

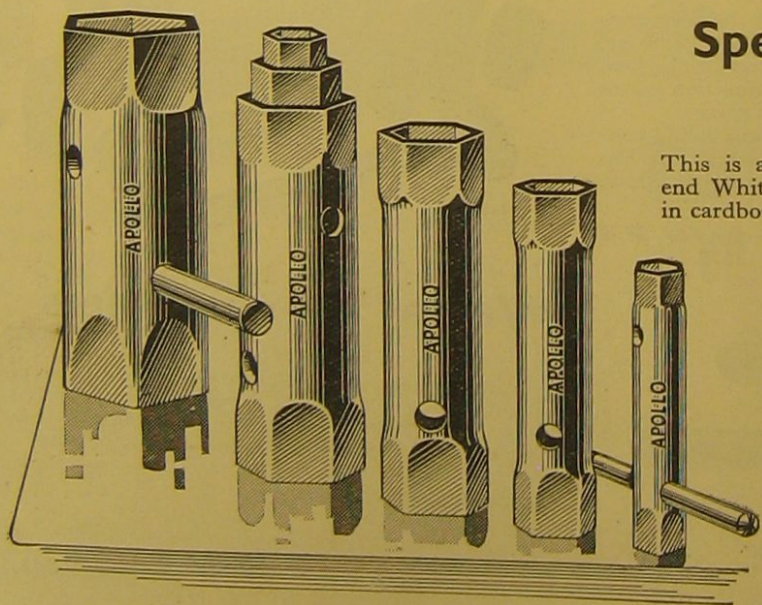
Tommy Bars

In various styles can be supplied for "Apollo" Box Spanners. **Price ... No. 1**, Size $\frac{3}{8}\times7$ ins., ... **2/6 per doz.**
No. 2, Size $\frac{5}{16}\times6$ ins. ... **2/– per doz.**

Prices of Individual Spanners

Size	$\frac{1}{8}\times\frac{3}{16}$	$\frac{1}{4}\times\frac{3}{16}$	$\frac{1}{4}\times\frac{5}{16}$	$\frac{1}{4}\times\frac{3}{8}$	$\frac{5}{16}\times\frac{3}{8}$	$\frac{5}{16}\times\frac{7}{16}$	$\frac{3}{8}\times\frac{7}{16}$	$\frac{3}{8}\times\frac{1}{2}$	$\frac{7}{16}\times\frac{1}{2}$	$\frac{7}{16}\times\frac{9}{16}$ in.
Price	**7/–**	**7/6**	**8/6**	**9/–**	**9/–**	**10/6**	**10/6**	**13/–**	**13/–**	**14/6** per doz.
Size	$\frac{1}{2}\times\frac{9}{16}$	$\frac{1}{2}\times\frac{5}{8}$	$\frac{9}{16}\times\frac{5}{8}$	$\frac{1}{2}\times\frac{3}{4}$	$\frac{5}{8}\times\frac{3}{4}$	$\frac{3}{4}\times\frac{7}{8}$	$\frac{7}{8}\times1$	$1\times1\frac{1}{8}$	$1\frac{1}{8}\times1\frac{1}{4}$	$1\frac{1}{4}\times1\frac{3}{8}$	$1\frac{1}{4}\times1\frac{1}{2}$	$1\frac{3}{8}\times1\frac{1}{2}$ in.
Price	**14/6**	**16/–**	**16/–**	**17/6**	**17/–**	**19/–**	**20/–**	**31/6**	**38/–**	**42/–**	**46/–**	**47/–** per doz.

B.A. Size Spanners. No. 2 BA, No. 4 BA., No. 6 BA. ... 2/6 per doz.



Special Garage Spanners Set No. 46W (British Made)

This is a heavy gauge set, consisting of seven double-end Whitworth Spanners and two Tommy Bars, packed in cardboard box.

Spanner sizes included in the set:—

$\frac{1}{4}\times\frac{5}{16}$, $\frac{3}{8}\times\frac{7}{16}$, $\frac{1}{2}\times\frac{9}{16}$, $\frac{5}{8}\times\frac{11}{16}$, $\frac{3}{4}\times\frac{13}{16}$, $\frac{7}{8}\times1$, $1\frac{1}{8}\times1\frac{1}{4}$ ins., and Tommy Bars $\frac{1}{2}$ and $\frac{3}{8}$ in. diam. by 6 ins. long.

Price, complete set 12/–

Separate Spanners can be supplied when necessary.

This set can also be supplied for S.A.E. sizes. Prices on application.

SOCKET WRENCHES AND SETS

"Apollo" Wireless Spanners (British Made)

Packed in Envelopes

Set No. 41.—5 Single-end Spanners, 3 ins. long, fitting Nos. 2, 3, 4, 5, and 6 B.A. nuts.

Price ... ... 1/– per set

Set No. 43—**Ovalled for easy handling** by thumb and finger. 2 Double-end Spanners, 3 ins. long, fitting Nos. 2, 3, 4, and 6 B.A. nuts. **Hexagon ends telescope** to give double length if required.

Price ... ... 6d. per set

Set No. 42.—3 Single-end Spanners, 3 ins. long, fitting Nos. 2, 4, and 6 B.A. nuts.

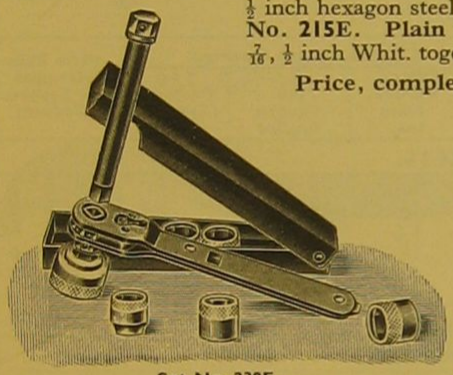
Price ... ... 7½d. per set

COMET Socket Wrench Sets, Nos. 215E and 230E (Foreign)

Of high grade steel tempered and ground, to correct size. Handle is of ½ inch hexagon steel.

No. 215E. Plain Set, contains 6 Hexagon sockets for 3/16, ¼, 5/16, ⅜, 7/16, ½ inch Whit. together with handle packed in a steel box.

Price, complete ... ... 4/– per set



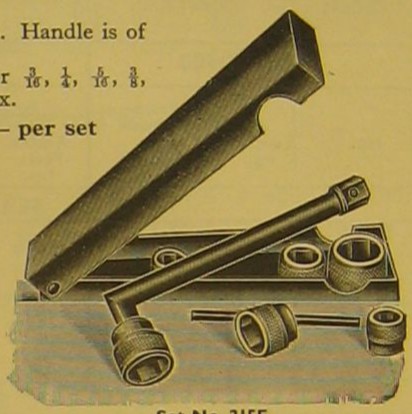
Set No. 230E

Ratchet Set

No. 230E. Similar to above but **has a Ratchet Wrench.**

Set contains 6 Hexagon sockets, for 3/16, ¼, 5/16, ⅜, 7/16, ½ Whit. together with ratchet wrench, packed in steel box.

Price complete 6/9 per set



Set No. 215E

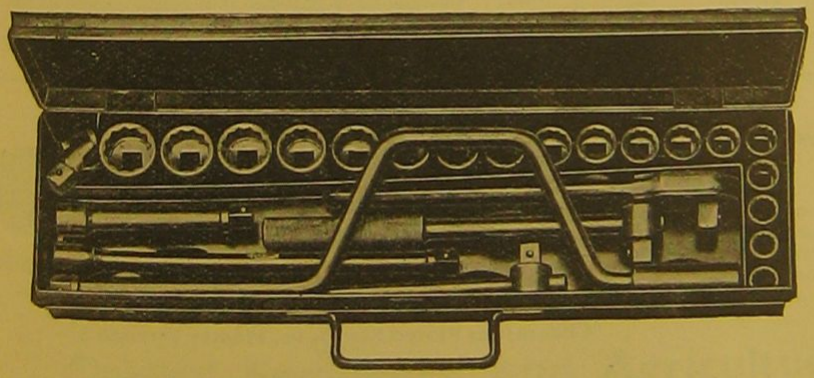
V L C. Socket Wrench Sets (British Made)

Set No. 690 AW

This set comprises a comprehensive range of Sockets with interchangeable handles and parts, covering practically all garage and workshop requirements.

The Duohex Sockets are of Chrome Vanadium, heat treated, and all sockets and parts are cadmium finished, giving an outfit of high quality and smart appearance.

The whole of the set is carefully fitted in a steel case of heavy gauge with strong lock and folding steel handle.



The complete set is specified below:—

No. 2273 Ratchet Handle.
,, **2281** Coupler for Ratchet Handle.
,, **2242** Speed Brace.
,, **2297** "T" Handle Adaptor (Short).
,, **2298** "T" Handle Adaptor (Long).
,, **2270** Offset Handle.
,, **2256** Bar Handle.
,, **2291** Universal Joint.
,, **2263** Short "T" Adaptor.
Six Whitworth size Sockets: Nos. 2117W, 2119W, 2123W, 2126W, 2129W, 2123W.
Twelve American size Sockets: Nos. 2116, 2118, 2119, 2120, 2122, 2124, 2125, 2126, 2128, 2130, 2132, 2134.

Price complete in case £4 17 6

Set No. 660 W

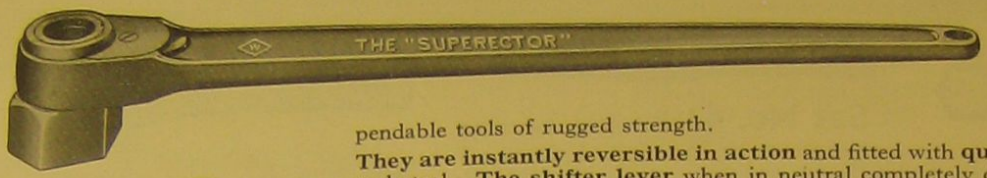
A small set particularly suited for the mechanic. Convenient to handle and carry around. Components:—

No. 2263 Short "T" Adaptor.
,, **2297** "T" Handle Adaptor (Short).
,, **2256** Bar Handle.
6 Whit. Sockets (Nos. 2117W, 2119W, 2123W, 2126W, 2129W, 2132W).

Price complete in case ... £1 6 0

WRENCHES

Williams' "Superector" Reversible Ratchet Wrench (Made in U.S.A.)



HEXAGON SOCKET

SQUARE SOCKET

Designed for rapid operation in bridge, structural, shipbuilding and other work requiring fast dependable tools of rugged strength.

They are instantly reversible in action and fitted with **quadruple pawls** of hardened tool steel. **The shifter lever** when in neutral completely disengages all pawls for easy insertion and removal of the socket.

Having twenty teeth in all socket gears these wrenches will rotate nuts with only an 18 degree swing of the wrench.

Handles are of drop-forged steel, slim and providing ample leverage.

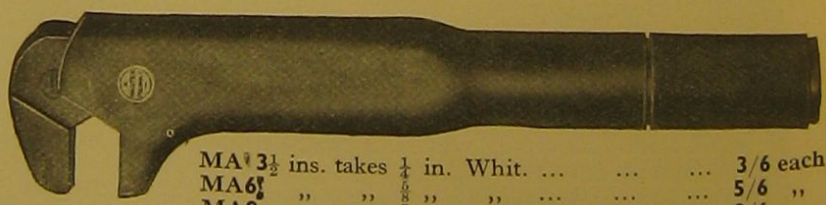
Sockets are heat treated and have a clear hole through the centres and are made in three groups, E1, E2, and E3, fitting corresponding wrench handles. Sockets of one group do not interchange with those of another group.

WRENCHES			SOCKETS							
			With Hexagon Opening				With Square Opening			
No.	Length Ins.	Price Wrench only Without Socket	Size Across Flats Ins.	No. Hex. Sockets	For Whitworth Standard Size Bolt	For S.A.E. Std. Nut Size Bolt	Size Across Flats Ins.	No. Square Socket	For Whitworth Standard Size Bolt	Price Each Hexagon or Square Sockets
SERIES E1 WRENCHES AND SOCKETS.										
E1-24	24	£2 12 6	1 1/16	E1-617	5/8	3/4	1 1/16	E1-417	5/8	£1 0 3
			1 1/4	E1-620	3/4	7/8	1 1/4	E1-420	3/4	1 0 10
E1-36	36	4 2 6	1 7/16	E1-623	7/8	1	1 7/16	E1-423	7/8	1 1 8
			1 5/8	E1-626	1	1 1/8	1 5/8	E1-426	1	1 2 6
Sockets at right fit both these Wrenches.			1 13/16	E1-629	1 1/8	1 1/4	1 13/16	E1-429	1 1/8	1 3 7
			2	E1-632	1 1/4	1 3/8	2	E1-432	1 1/4	1 4 7
			2 3/16	E1-635	1 3/8	1 1/2	2 3/16	E1-435	1 3/8	1 5 10
SERIES E2 WRENCHES AND SOCKETS										
E2-36	36	£5 5 0	2	E2-632	1 1/4	1 3/8	2	E2-432	1 1/4	£2 0 5
			2 3/16	E2-635	1 3/8	1 1/2	2 3/16	E2-435	1 3/8	2 1 8
E2-48	48	6 15 0	2 3/8	E2-638	1 1/2	—	2 3/8	E2-438	1 1/2	2 3 4
			2 9/16	E2-641	1 5/8	—	2 9/16	E2-441	1 5/8	2 5 0
Sockets at right fit both these Wrenches.			2 3/4	E2-644	1 3/4	—	2 3/4	E2-444	1 3/4	4 7 1
			2 15/16	E2-647	1 7/8	—	2 15/16	E2-447	1 7/8	2 9 5
			3 1/8	E2-650	2	—	3 1/8	E2-450	2	2 11 8
SERIES E3 WRENCH AND SOCKETS										
E3-48	48	£10 10 0	3 1/8	E3-650	2	—	3 1/8	E3-450	2	£4 3 9
			3 1/2	E3-656	2 1/4	—	3 1/2	E3-456	2 1/4	4 6 8
Sockets at right fit this Wrench.			3 7/8	E3-662	2 1/2	—	3 7/8	E3-462	2 1/2	4 10 0
			4 1/4	E3-668	2 3/4	—	4 1/4	E3-468	2 3/4	4 14 0
			4 5/8	E3-674	3	—	4 5/8	E3-474	3	4 18 7

Master Adjustable Spanner

Grips like a vice

The jaws are arranged to take four sides of a hexagon nut. Body is of one piece steel, and is practically unbreakable. Handle mechanism is mounted in a ball-race which eliminates friction, and enables the spanner to give a better grip.

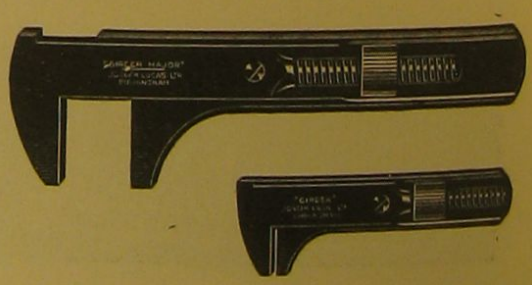


MA 3½ ins. takes ¼ in. Whit. ... ... 3/6 each
MA6 5/8 ,, ,, ,, ,, ... 5/6 ,,
MA9 7/8 ,, ,, ,, ,, ... 8/6 ,,
Chromium Plated Size 3½ in. Master Wrench 5/- ,,

"Lucas" Girder Wrenches (British Made)

These wrenches are designed for use on cars, motor-cycles, small machinery, and innumerable household uses. **The shape of the jaws give a vice-like grip.** They are responsive to minute touch and do not lock.

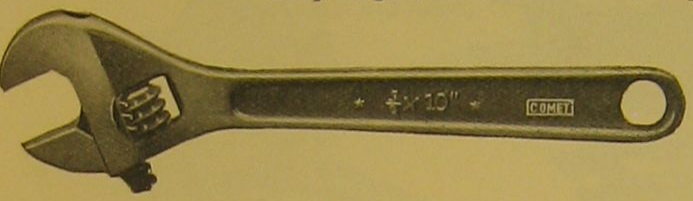
No.	90	91	93
Sizes	3¼	4½	7¼ ins.
Price	3/-	4/6	7/6 each

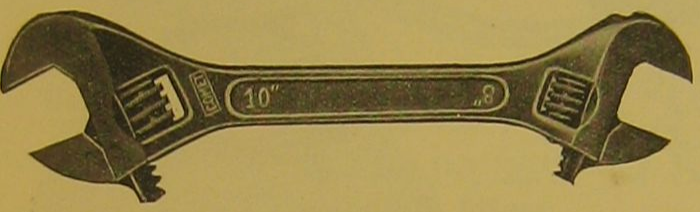


ADJUSTABLE WRENCHES

COMET Adjustable Wrenches (Foreign)

Drop-forged, hardened all over, and tempered. Fully warranted.





Sizes and Prices

Single End Wrenches—							
Size ...	4	6	8	10	12	15	ins.
Capacity, Jaws open	½	¾	15/16	1⅛	1 5/16	1¾	ins.
Price ...	**17/–**	**21/–**	**26/–**	**34/–**	**48/–**	**93/–**	**per doz.**

Double End Wrenches—					
Size	4—6	6—8	8—10	10—12	ins.
Capacity, Jaws open	½—¾	¾—15/16	15/16—1⅛	1⅛—1 5/16	ins.
Price ...	**39/–**	**49/–**	**63/–**	**82/–**	**per doz.**

"Comet" Wrench Parts

Size ...	**4**	**6**	**8**	**10**	**12**	**ins.**
Jaws ...	**4/6**	**6/–**	**8/6**	**11/–**	**17/–**	**per doz.**
Knurls ...	**1/3**	**1/6**	**2/–**	**2/9**	**3/9**	**,,**
Pins ...	**8d.**	**8d.**	**10d.**	**1/–**	**1/6**	**,,**

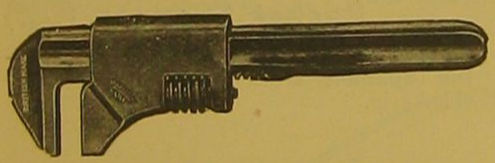
COMET Clyburn Pattern Spanners (Foreign)

Fully warranted. Drop forged steel. Hardened all over and tempered. Mottled Finish.

Size ...	**6**	**8**	**10**	**12**	**14**	**ins.**
Opening ...	⅝	¾	1	1¼	1⅜	ins.
Price ...	**29/–**	**37/–**	**47/–**	**63/–**	**76/–**	**per doz.**

"Snail Brand" Adjustable Wrenches (British Made)

Pattern Q. Full Finish or Semi-finish.



Size	**6**	**8**	**11**	**12**	**14**	**18**	**ins.**
Jaws open	1 7/16	1 3/8	2¼	2½	3	3 3/16	,,
Thickness of Jaw ...	5/16	3/8	3/8	3/8	9/16	¾	,,
Depth of Jaw	1	1¼	1½	1⅝	1¾	2⅛	,,
Price, Semi-finish ...	**1/10**	**2/2**	**3/6**	**3/9**	**6/9**	**12/–**	**each**
,, Full Finish ...	**3/–**	**3/9**	**6/–**	**6/3**	**10/6**	**17/6**	**,,**

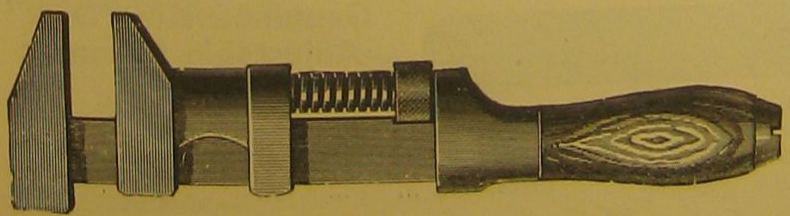
Pattern R. Semi-finish only.

Size	**9**	**11**	**ins.**
Jaws open	2⅛	2⅜	,,
Thickness of Jaws	3/8	3/8	,,
Depth of Jaw	1⅝	1¾	,,
Price	**1/8**	**3/–**	**each**

Agricultural "S" Wrench Pattern QQ. Semi-finish only.

Length overall	**10**	**ins.**
Jaws open	1⅛	,,
Weight	1¼	lbs.
Price	**3/–**	**each**

COMET Engineers' and Agricultural Wrench (Foreign)

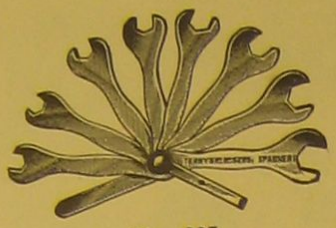


This is a good, cheap Wrench for rough work.

The bar and head are all of wrought iron, and made extra heavy.

Sizes ..	8	.. 10	.. 12	ins.
Prices ..	**30/–**	.. **39/6**	.. **52/–**	doz.

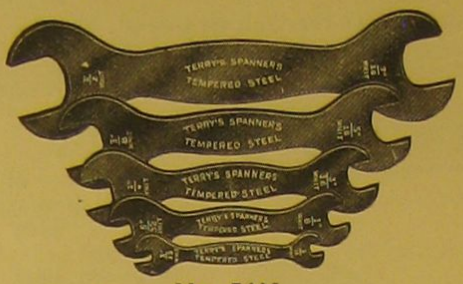
Terry Spanner Sets (British Made)



No. 905

The Midget 8 leaved Magneto Spanner set. **Includes ·012 Feeler Gauge, and Small Screwdriver.**

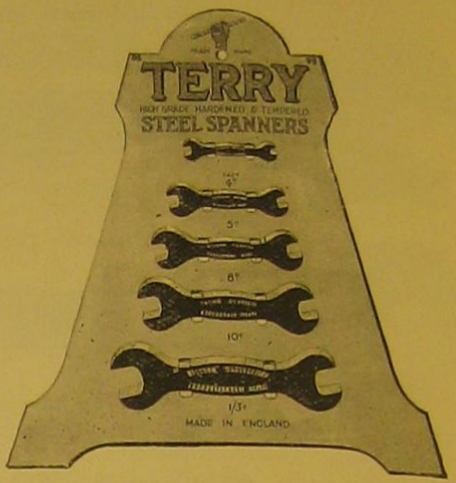
	Blued	Plated
Price	**1/6**	**2/– per set.**



No. 544A

Set of five. Grip range ⅛in. to ½in. Whitworth; or in metric sizes 4 m/m. to 14 m/m. No. 1096 Blued **3/6** per set.
Case **1/-** each.
Spanners separately

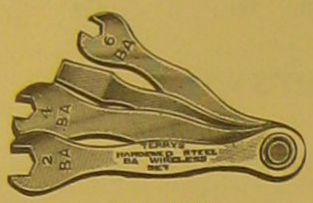
Size	¼×⅜	⅜×⅜	⅜×½	½×⅝	⅝×½
Price	**4d.**	**5d.**	**8d.**	**10d.**	**1/3** each.



No. 1120
DISPLAY BOARD

Containing 6 sets No. 544A or No. 1096 Metric Spanners.

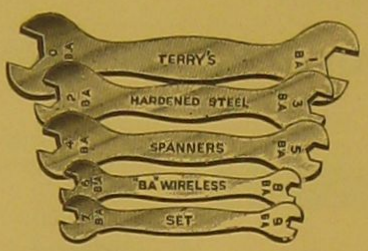
Price, complete 21/–



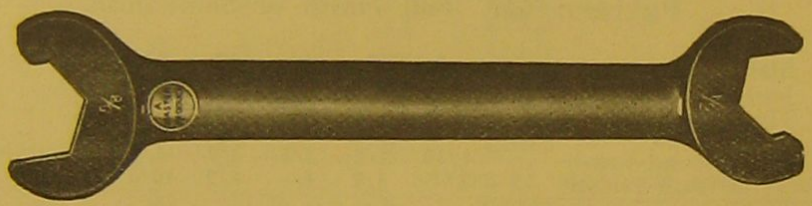
No. 1068 ...

Folding set. Suitable for Wireless Work. **Gives sizes 2, 4, 6 BA and Screwdriver.**

	Blued
Price ...	**1/6 per set.**



No. 1069. "BA" Set of 5 Spanners giving grips 0 to 9 BA.
Price, Blued finish 1/9 per set.

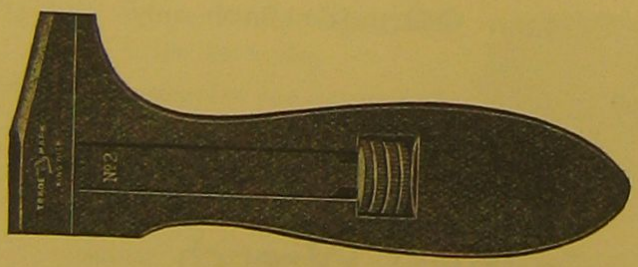


Master Fixed Rachet Spanner (British Made)

Automatically ratchets without removing spanner from flat of nut. Four-sided grip.

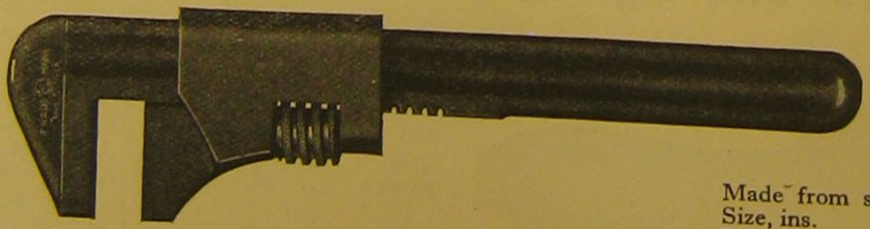
Sizes and Prices

DR4	takes	¼×5/16	ins.	Whit.	...	Price	1/3 each	**DR8A**	takes	½×⅝	ins.	Whit.	...	Price	2/6 each
DR5	,,	5/16×⅜	,,	,,	...	,,	1/6 ,,	**DR10A**	,,	⅝×¾	,,	,,	...	,,	3/– ,,
DR6	,,	⅜×7/16	,,	,,	...	,,	1/9 ,,	**DR12A**	,,	¾×⅞	,,	,,	...	,,	3/9 ,,
DR8	,,	½×9/16	,,	,,	...	,,	2/– ,,	**DR14A**	,,	⅞×1	,,	,,	...	,,	4/9 ,,
DR6A	,,	⅜×½	,,	,,	...	,,	1/9 ,,	**DR16C**	,,	1×1¼	,,	,,	...	,,	7/3 ,,
DR7A	,,	7/16×½	,,	,,	...	,,	1/9 ,,								



Genuine "King Dick" Adjustable Spanners (British Made)

No.	**0**	**1**	**2**
Size, ins.	3	4	6
Price, each	**1/4**	**1/9**	**2/9**



Genuine "King Dick" Adjustable Spanners

(British Made)

(Billings Type)

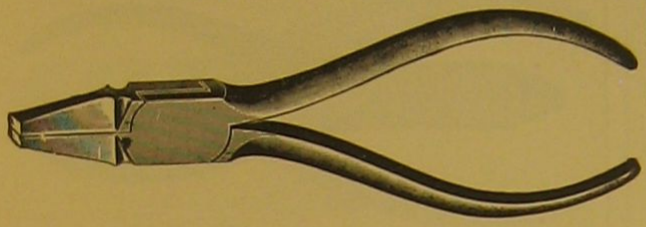
Made from selected high carbon spanner steel.

Size, ins.	7	9	11
Price, each	**2/6**	**3/6**	**4/–**

COMET Pliers (Foreign)

Flat and Round Nose Pliers

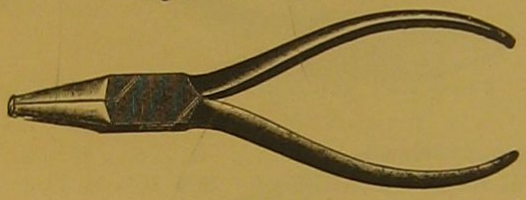
Forged Steel. **Lap Joint.**



Sizes	4½	5	6	ins.
No. 2000P. Flat Nose, Polished	12/3	12/9	16/6	per doz.
No. 2002P. Round Nose, Polished ...	12/3	12/9	16/6	,,

Flat and Round Nose Pliers

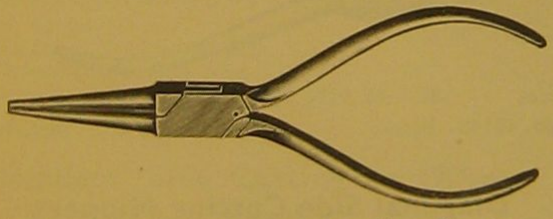
Forged Steel. **Box Joint.**



Sizes	4	4½	5	5½	6	7	ins.
No. 2038S. Round Nose, Black	15/9	17/3	18/9	20/9	24/–	30/9	per doz.
No. 2036S. Flat Nose, Black	15/9	17/3	18/9	20/9	24/–	30/9	,,

Pendulum Long Flat and Round Nose Pliers

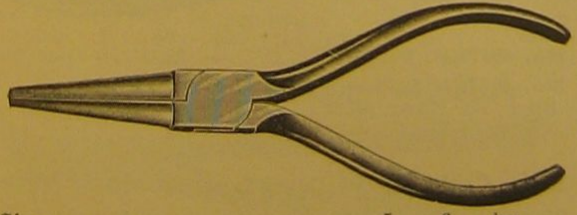
Forged Steel. **Box Joint.**



Sizes	4	4½	5	ins.
No. 2054S. Flat Nose, Black	16/3	17/9	19/6	per doz.
No. 2056S. Round Nose, Black ...	16/3	17/9	19/6	,,

Long Flat and Round Nose Pliers

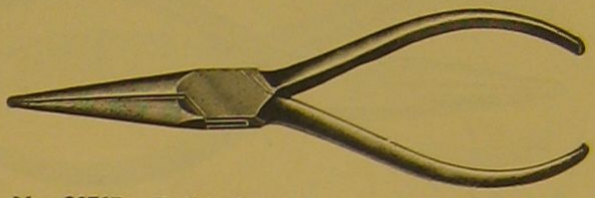
Lap Joint.



Sizes	5	6	ins.
No. 2057P. Flat Nose, Polished	14/–	18/3	per doz.
No. 2058P. Round Nose, Polished	14/–	18/3	,,

Long Snipe Nose Pliers

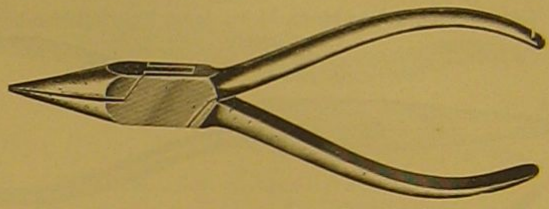
Forged Steel. **Box Joint.**



No. 2076P. Polished.
Length Overall, 5½ ins. **Price** ... **29/3 per doz**

Snipe Nose or Chain Pliers

Forged Steel. **Box Joint.**

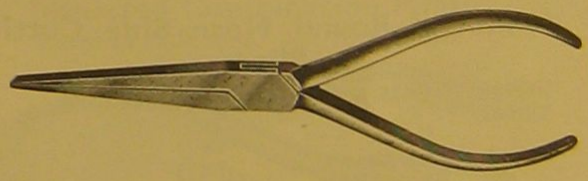


No. 2080BR. Gun-metal finish. Oxydised.

Sizes ...	4½	5	ins.
Price ...	20/–	21/9	per doz.

Needle Pliers

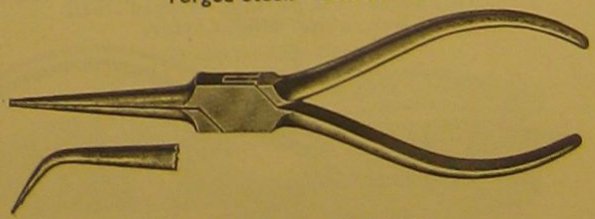
Forged Steel. **Box Joint. Oiled, Hardened.**



Sizes	6	7	ins.
No. 2081P. Polished	27/–	32/6	per doz.

Needle Pliers

Forged Steel. **Box Joint.**

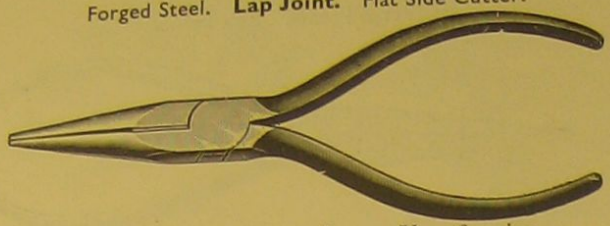


No. 2085BR. Straight. Oxydised Finish.
Length, 5½ ins. **Price** ... ... **26/9** per doz.
No. 2085BR/I, Bent. Oxydised Finish.
Length, 6 ins. **Price** ... ... **29/9** per doz.

COMET Pliers and Cutting Nippers (Foreign)

Long Half-Round Nose Pliers

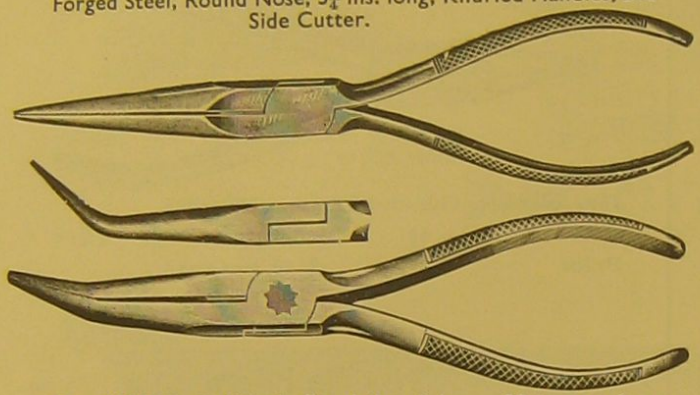
Forged Steel. **Lap Joint.** Flat Side Cutter.



Size	5	5½	6	ins.
No. 4074P. Polished, Round Nose ...	12/–	12/6	14/–	per doz.
No. 4074INS. Insulated Round Nose	12/–	12/9	14/6	,,
No. 4076P. Polished. Flat Nose ...	12/–	12/6	14/–	,,

Long Reach, Round Nose Cutting Pliers, for Light Work

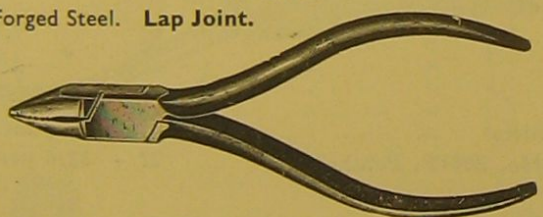
Forged Steel, Round Nose, 3¼ ins. long, Knurled Handles, and Side Cutter.



No. 4075KP. Polished. **Straight,** 8 ins. **22/–** per doz.
No. 4075KP. Polished. **Bent,** 8 ins. **23/3** ,,

Milliners' Round Nose Side Cutting Pliers

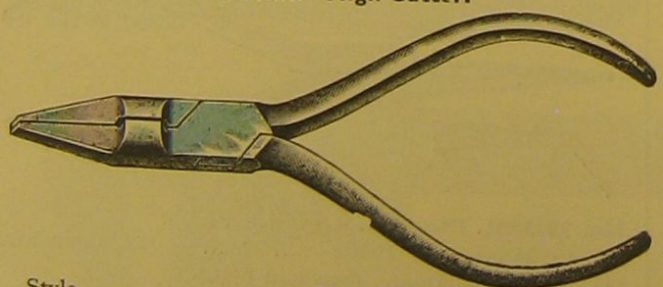
Forged Steel. **Lap Joint.**



Sizes	4½	5	ins.
No. 3041P. Polished	14/–	16/–	per doz.

Milliners' Pliers

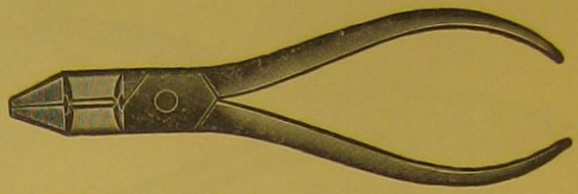
Flat, Round or Snipe Nose. Forged Steel.
Box Joint. High Cutter.



Style	Flat	Round Nose	Snipe Nose	
No. 3099P. Polished 5 ins.	25/6	25/6	25/6	per doz.

Flat Nose Side Cutting Pliers

With Flat Side Cutter. Forged Steel. **Box Joint.**

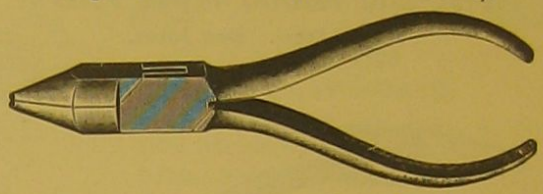


No. 3020BR. Oxydised.

Sizes	5	5½	6	7	ins.
Price	31/–	34/3	39/3	47/–	per doz.

Round Nose Side Cutting Pliers

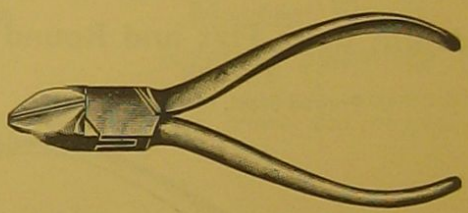
Forged Steel. **Box Joint.** Extra Quality.



Sizes	4½	5	5½	ins.
No. 3040P/I. Fine Polished	28/9	31/–	35/3	per doz.

Side Cutting Nippers

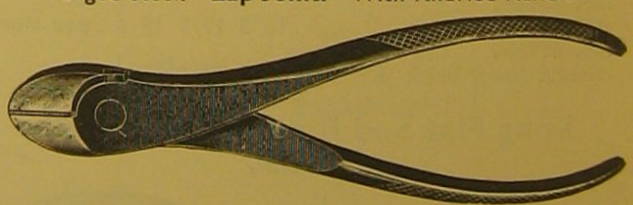
With Offset Jaws. **Box Joint.** Lancashire Pattern.



Sizes	5	5½	6	ins.
No. 4014S. Black ...	27/6	31/6	37/–	per doz.

Diagonal Side Cutting Nippers

Forged Steel. **Lap Joint.** With Knurled Handles.



Sizes	5½	6½	7	ins.
No. 4017KP. Polished ...	—	23/3	—	per doz.
No. 4017KS/I. Electro Steel Black, For Hard Wire ...	27/–	—	36/6	,,

Side Cutting Nippers. For Hard Wire

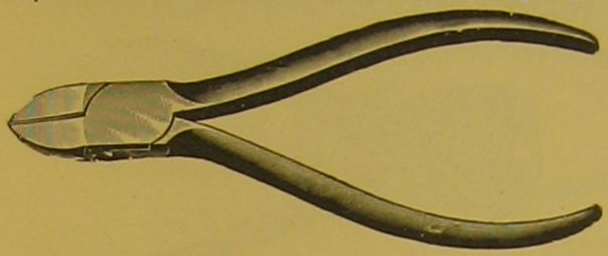
Similar to No. 4017KS, illustrated above, but fitted with volute spring in handles, and is specially suitable for cutting wire netting, etc.

No. 4017KP/WN. Polished. Length 5½ inches.
Price ... ... **27/6** per doz.

COMET Pliers and Cutting Nippers (Foreign)

Diagonal Side Cutting Nippers

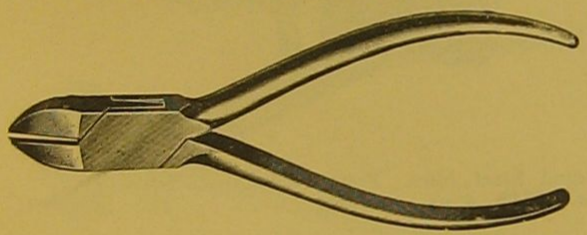
Lap Joint. Swedish Pattern. **Hardened Cutting Edges**



Size	4½	5	5½	ins.
No. 4018KP. Lap Joint, Knurled, Polished	14/–	—	16/9	per doz
No. 4018INS. Lap Joint, **Insulated** ...	17/3	—	20/9	,,
No. 4018S/I. Lap Joint, **Special for Silk covered Wire** and non-ferrous metals	23/–	24/6	26/3	,,

Diagonal Side Cutting Nippers

Box Joint. Swedish Pattern.

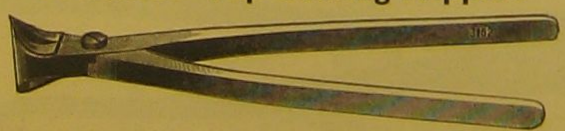


Size	4½	5	5½	ins.
No. 4019SH. Box Joint. For **Hard Wire**	—	—	29/6	per doz.
No. 4019S/I. Box Joint. **Special for Silk Covered Wire** and Non-ferrous metals	34/6	36/3	38/–	,,

Jewellers' Side Cutting or Offset Nippers

Lap Joint, fitted with Bolt and Nut. Hand made. All bright. For very fine Gold or Silver mesh work, etc.
No. 3160 **Price,** 4¼ ins. long ... **5/5 each**

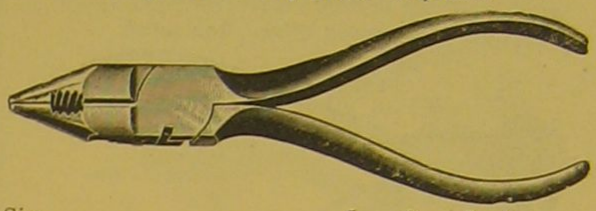
Jewellers' Top Cutting Nippers



Lap Joint, fitted with Bolt and Nut. Hand made. All bright. For very fine Gold or Silver mesh work, etc.
No. 3162. **Price,** 4¼ ins. long ... **5/5 each**

Lancashire Pattern Combination Pliers

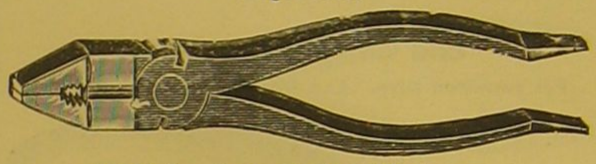
Forged Steel. **Lap Joint.** Oxydised.



Size	5	6	7	ins.
No. 3064BR. Round Nose	20/–	26/–	33/–	per doz.
No. 3064BR. Flat Nose ...	20/–	26/–	33/–	,,

Flat Nose Combination Pliers

Forged Steel.



3084S/I. Best Quality Black.

Size	6	7	8	ins.
Price	18/3	22/–	26/6	per doz.

3084S/3. Second Quality Black.

Size	6	7	8	ins.
Price	12/–	14/6	18/3	per doz.

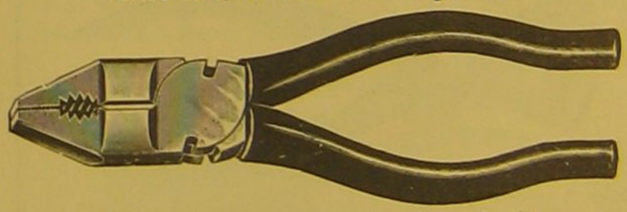
Taper Nose Combination Pliers

Forged Steel.
Half-round Taper Nose, with Two Wire Cutters.

No. 3086. Size	6	7	8	ins.
Price	19/3	23/3	27/9	per doz.

Insulated Combination Pliers

Tested to 5,000 volts. Best Forged Steel.



Size	6	7	8	ins.
No. 3092/1 Best Quality	21/–	25/6	31/–	per doz.
No. 3092/3 Second Quality	14/6	17/9	21/6	,,

Soft Rubber Insulated Combination Pliers

Special Fine Quality.

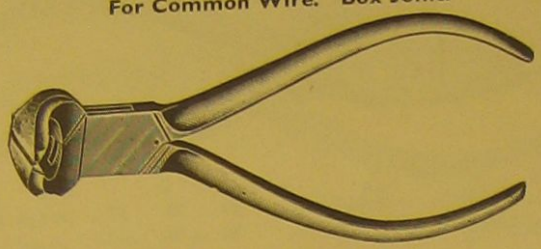
Size	6	7	ins.
No. 3093SR. (Tested 12,000 volts)	25/6	37/6	per doz.
No. 3094SR (Tested 15,000 volts)	40/9	48/6	,,

Y

COMET Pliers and Cutting Nippers (Foreign)

End Cutting Nippers

For Common Wire. Box Joint.

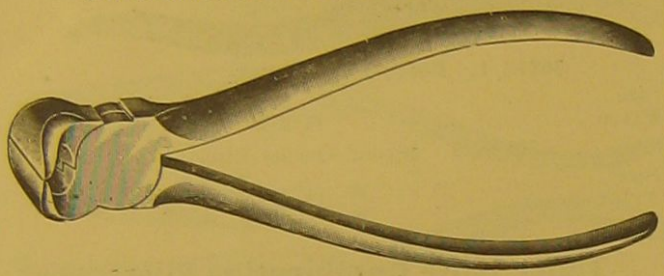


No. 4020BR. Gun-metal finish.

Sizes	4	4½	5	6	7	ins.	
Price ...	**24/3**	**24/3**	**26/6**	**32/6**	**39/9**	**per doz.**	

End Cutting Nippers

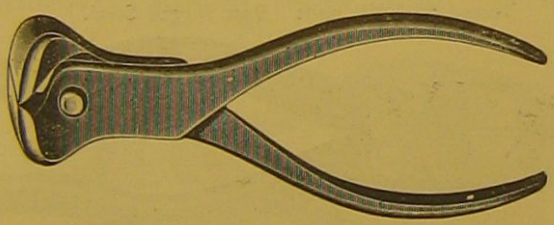
For common wire. Lap Joint. Swedish Pattern.



Size	4	5	6	ins.
No. 4026KP. Knurled, Polished	**19/9**	**22/9**	**30/3**	**per doz.**

End Cutting Nippers

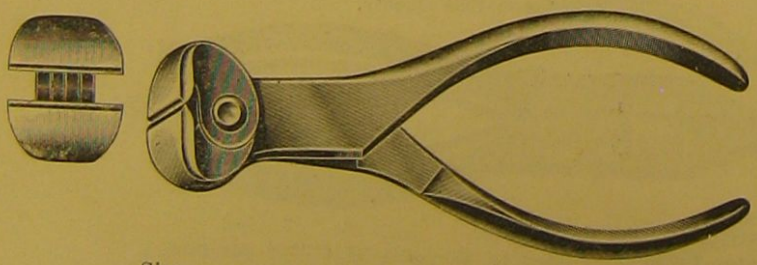
Forged Steel. **Extra Strong. Long Joint.**



Size	5	6	7	8	ins.
No. 4038S. Black ...	**21/–**	**26/6**	**32/–**	**39/9**	**per doz.**

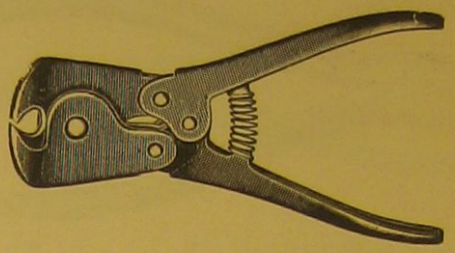
End Cutting Nippers

For Hard Wire. With 4-way Joint. Cutting edges cannot get out of line.



Size	6	7	ins.	
No. 4042. Oiled Black Finish	**48/9**	**58/6**	**per doz.**	

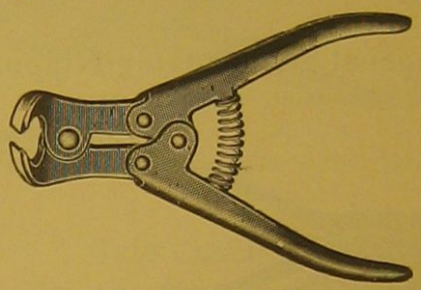
Toggle Joint End Cutting Nippers



No. 4052S. Black Stamped Steel, for Soft Wire.

Size	6	7	8	ins.	
Price	**28/3**	**33/–**	**39/9**	**per doz.**	

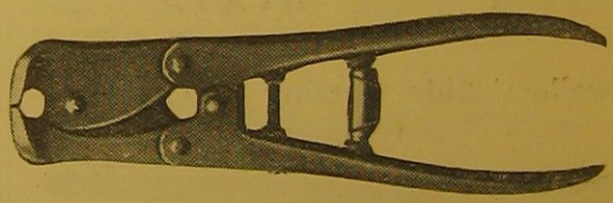
Toggle Joint End Cutting Nippers



Forged Steel Jaws. Pressed Handles. **Black.**
No. 4054S. 6 ins. **Price** ... **33/– per doz.**

Finest Quality Swedish Cutting Pliers (Foreign)

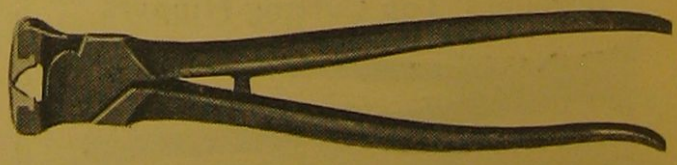
Toggle Joint End Cutting Nippers



For Hard Wire. Knurled Grips.

No. 515.	6	8	ins.	
Price	**7/–**	**8/9**	**each**	

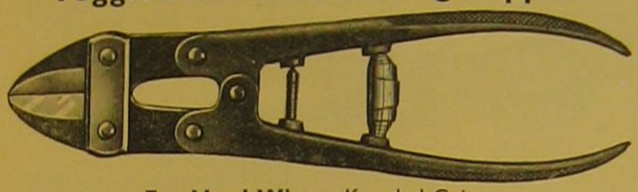
End Cutting Nippers



With inserted hardened steel blades, suitable for hard wire.
No. 1519. Price, 9 ins. ... ... **7/9 each**
Extra Jaws, **2/–** pair.

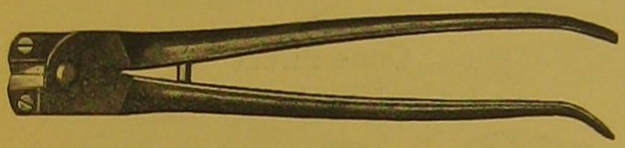
COMET Pliers and Cutting Nippers (Foreign)

Finest Quality Swedish Cutting Pliers
Toggle Joint Side Cutting Nippers



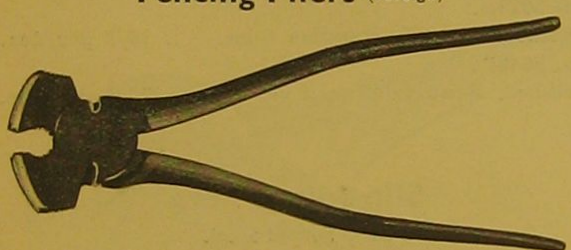
For Hard Wire. Knurled Grips.
No. 516. 8½ ins. ... ... **7/9 each**

Side Cutting Nippers



With inserted hardened steel blades, suitable for hard wire.
No. 1518. Price, 9 ins. ... ... **6/9 each**
Extra Jaws, **2**/– pair.

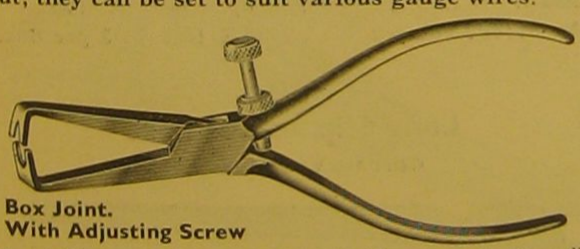
Fencing Pliers (Foreign)



For farmers, etc. **Combines Hammer, Wire Cutter, Splicer, Stretcher and Straightener.** Knurled handles. A very handy tool.
No. 4080S. 10 ins. Black. Polished Head **54**/– **per doz.**

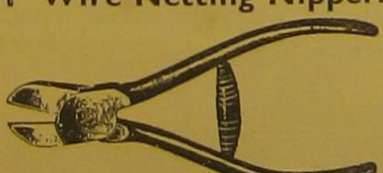
Stripping Pliers

Unequalled for stripping insulated wire, in the quickest and easiest manner. **By adjusting the screw and lock-nut, they can be set to suit various gauge wires.**



Box Joint.
With Adjusting Screw
No. 4001S. Black and Bright Finish. Length Overall 6¼ ins. **Price** ... ... **46/3 per doz.**

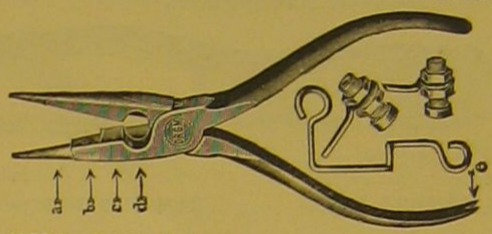
COMET Wire Netting Nippers (British Made)



Fitted with volute spring in handles. Suitable for cutting wire netting.
No. 70. Black, Size, 6 ins. ... ... **25**/– **per doz.**

Universal Radio Pliers

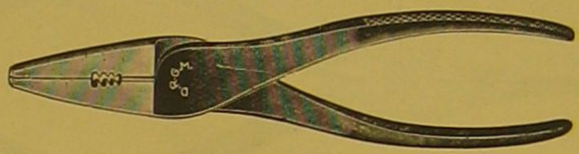
Forged Steel. With Plain Handles, and Wire Cutter.



No. 4073P. Polished. 5½ ins. ... ... **22**/– **per doz.**

Radio Pliers

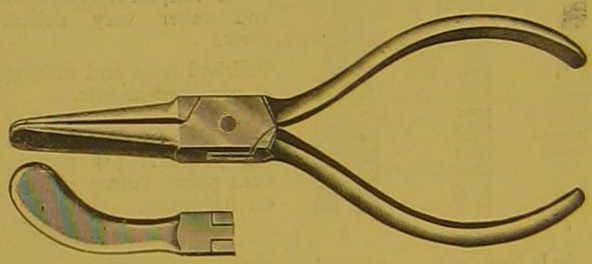
Forged Steel Knurled Handles. With Burner Hole and Wire Cutters.



No. 4077P. 6 ins. ... ... **17/9 per doz.**

Weavers' or Reed Pliers

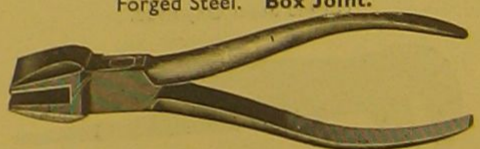
Forged Steel. **Box Joint.** Not File cut in Jaws.



Sizes ... ... 5½ 6 ins.
No. 3002S. Straight, Black ... **22/9 25/6** per doz.
No. 3002S. Bent. Black ... **23/9 26/9** ,,

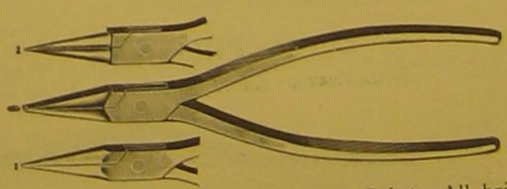
Glass Breaking Pliers

Forged Steel. **Box Joint.**



No. 3010S. Black ... ... 6 7 8 ins.
Price ... ... **28/9 34/9 48/6** per doz.

Jewellers' Pliers

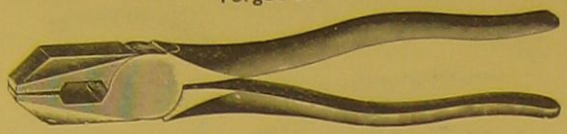


Hand made Pliers. Very Fine. **Box Joint.** All bright Finish. Super Quality.
No. 3170 Flat Nose. 4½ ins. Price **38**/– per doz.
No. 3172 Round Nose 4½ ,, Price **38**/– ,,
No. 3174 Snipe Nose 4½ ,, Price **38**/– ,,

COMET Pliers (Foreign)

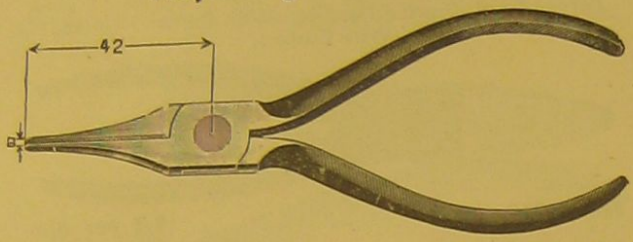
Linesmen's Pliers

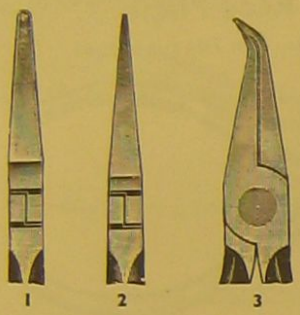
Forged Steel.



Size	6	7	8	ins.
No. 3080SK. Black ...	**22/6**	**27/9**	**34/9**	**per doz.**

Adjusting Pliers No. 2088





Specially designed for automatic telephone, electrical, and other very delicate work.

Polished nose and polished or oxydised handle.

Three types of nose: (1) tapering round; (2) tapering pointed; (3) tapering bent point. Points specially oil hardened.

Style Nos.	1 Broad	2 Narrow	3 Bent
No. 2088BR. 5 ins.	**24/9**	**25/6**	**30/3 per doz.**

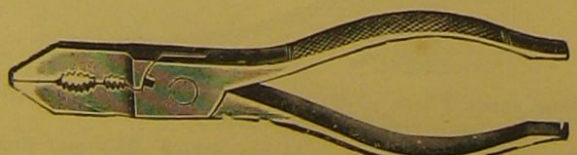
"Carlson" Type Pliers

Forged Steel Oxydised.

No. 5014BR. 8 ins. ... ... **31/– per doz.**

Burner Pliers

Extra Heavy. Knurled Handles.



No. 5006P. Fine Polished 6 ins. ... **22/– per doz.**

Scotch Pattern Gas Pliers

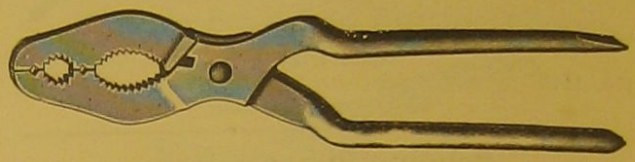
Forged Steel.

No. 5020S. Black.

Size	6	7	8	9	10	ins.
Price ...	**17/3**	**22/–**	**26/6**	**32/–**	**38/–**	**per doz.**

Cone Pliers

Forged Steel.

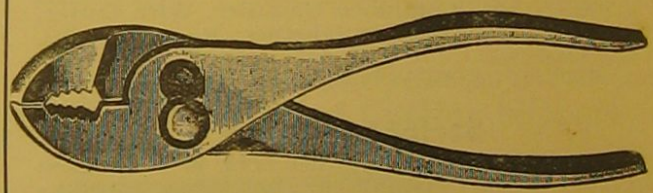


No. 5028P.
Polished. **Straight Handles.** 8 ins. ... **18/9 per doz.**

No. 5040P.
Polished. **Bent Handles.** 8 ins. ... **21/6 per doz.**

Slip Joint Pliers

Drop Forged Steel.

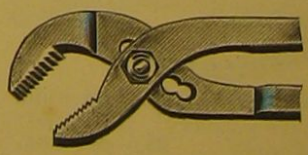


Sizes	5½	6½	8	ins.
No. 5010P. Polished ...	**15/6**	**16/6**	**23/3**	**per doz.**

Long Slip Joint Pliers

Chrome Vanadium Steel.

No. 5013P/1. Polished, **With Burner Hole.** Length Overall, 9½ ins. **Price** ... ... **53/3 per doz.**

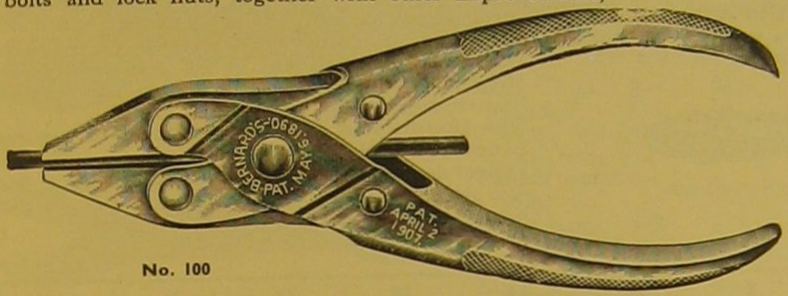


No. 5013P. Polished, without Burner Hole. Length overall, 9½ inches.
Price ... **48/6 per doz.**

PLIERS & CUT NIPPERS

Schollhorn "Bernard" Patent Pliers (Made in U.S.A.) With Hollow Open Throats

These Pliers with parallel jaws and open throats are constructed of crucible steel throughout, including rivets. **They are nickel-plated,** the cutting pliers with steel bolts and lock nuts, together with other improvements, make these goods as near to perfection as possible. **The cutters, when worn or broken,** can easily and cheaply be replaced, all parts being interchangeable.

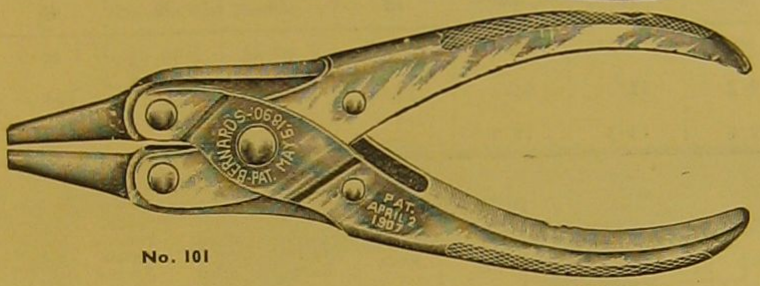


No. 100

Flat Nose Pliers

No. 100—Heavy

Sizes	4½	5½	6½	8	ins.
Prices	3/3	3/6	4/–	5/–	each



No. 101

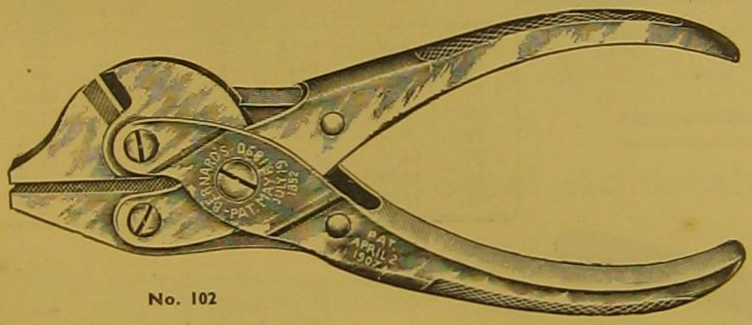
Round Nose Pliers

No. 101—Heavy

Size	6½	ins.
Price	4/9	each

No. 104—Light

Size	5	ins.
Price	4/–	each



No. 102

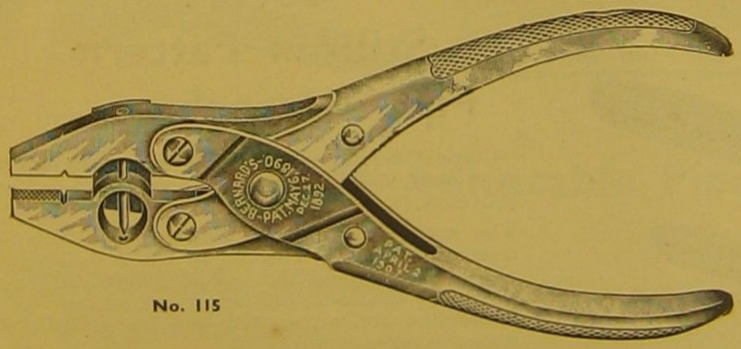
Cutting Pliers

No. 102—Heavy

Sizes	4½	5½	6½	8	ins.
Prices	5/9	6/3	7/–	9/3	each

No. 105—Light

Size	5	ins.
Price	5/9	each



No. 115

Belt Punch and Pliers

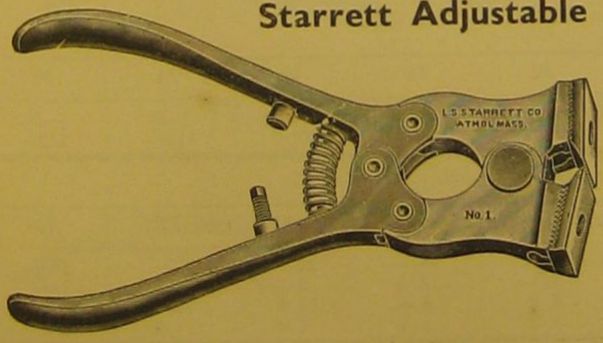
No. 115

For cutting and piercing round belting in one operation.

The 5-inch for use on ¼-inch belt, and the 6-inch on ⅜-inch belt.

Sizes	5	6 ins.
Prices	6/3	6/6 each

Starrett Adjustable Jaw Cut Nipper, No. 1 (Made in U.S.A.)



The jaws are detachable, and can be ground away to the extent of ¼ inch.

A flat spring is inserted below the cutting edges to form a yielding seat, and prevent breaking the jaw.

The head and handles are case-hardened, and the jaws are tempered.

For cutting music wire the cutting edges are ground to a short steep bevel, while those for common use have a more acute cutting edge.

The 5½-inch Nippers open ⅛ inch, and the 7-inch open $\frac{5}{32}$ inch.

Size, 5½ inches **19/6 each** 7 inches. **25/3 each**

Extra Jaws ... ... **3/6 per pair**

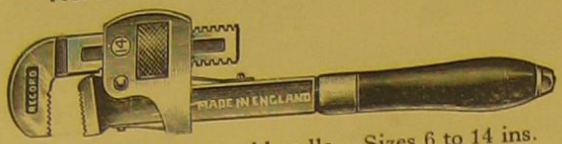
Supplied either for music wire, bicycle work, or common use.

PIPE WRENCHES

"Record" Pipe Wrenches (British Made)

Drop-forged Steel. Parts Interchangeable.

No. 300 With Steel handle. Sizes 8 to 48 ins.



No. 400 With Wood handle. Sizes 6 to 14 ins.

These Wrenches are made in two styles, Steel Handle and Wood Handle.

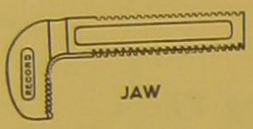
These Wrenches are guaranteed against defect in material and workmanship, and all parts are interchangeable with other standard makes.

The success of the RECORD STILLSON WRENCH is largely due to the high-class quality of Sheffield Steel put into it and to the scientific heat treatment of all the parts.

The Handle and Jaw are subjected to various processes of Heat Treatment, which imparts the correct degree of hardness to the gripping teeth, and also gives to the parts that toughness which prevents breaking, and makes them difficult to bend.

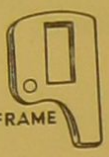
Sizes and Prices

Length, Open ... ins.	6	8	10	14	18	24	36	48
Will Grip Pipe ... ins.	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{4}$ to $3\frac{1}{2}$	1 to 5
Prices, Steel Handle, No. 300 ... ... each	—	9/3	12/-	16/-	23/-	35/6	62/6	104/-
Prices, Wood Handle, No. 400 ... ... each	8/4	9/6	13/3	17/9	—	—	—	—



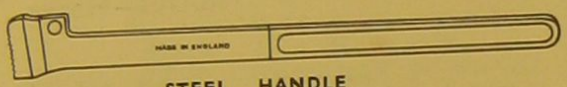
JAW

NUT



FRAME

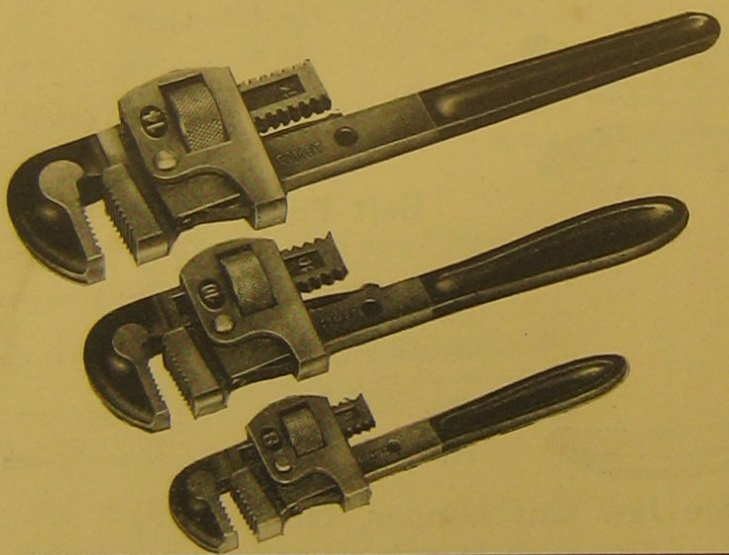
WOOD HANDLE



STEEL HANDLE

Spare Parts

Wrench Size Ins.	Jaws Each	Frame and Pin Each	Wood Handle Each	Steel Handle with Spring Each	Nuts Each
6	2/9	1/11	1/-	—	8d.
8	2/11	2/4	1/1	4/10	8d.
10	4/7	2/11	1/3	6/8	10d.
14	6/3	3/4	1/6	9/2	1/3
18	9/-	4/-	—	13/7	1/6
24	14/7	7/4	—	21/6	2/4
36	23/9	11/6	—	43/9	4/7
48	37/6	14/7	—	70/10	8/4



COMET Stillson Pattern Pipe Wrenches (Foreign)

"Comet" wrenches are made from drop forged tool steel, and are thoroughly reliable and serviceable tools.

The movable jaw is reinforced by a mass of metal at the corner. This can be seen in the illustration—it strengthens the jaw at a vital place and practically eliminates possibility of breakage.

Wrenches are warranted free from faults in manufacture.

Size ... ... ins.	6	8	10	14	18	24	36
Capacity ... ... ins.	$\frac{1}{8}$–$\frac{1}{2}$	$\frac{1}{8}$–$\frac{3}{4}$	$\frac{1}{8}$–1	$\frac{1}{4}$–$1\frac{1}{2}$	$\frac{1}{4}$–2	$\frac{1}{4}$–$2\frac{1}{2}$	$\frac{1}{4}$–$3\frac{1}{2}$
Price ... ... per doz.	26/-	28/-	36/-	52/-	72/-	114/-	210/-

Prices of Spare Parts

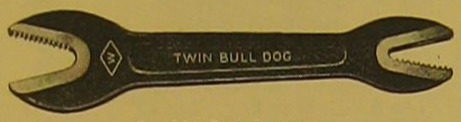
Size ... ... ins.	6	8	10	14	18	24	36
Jaws ... ... per doz.	8/9	9/-	11/-	14/-	20/-	34/-	54/-
Nuts ... ... ,,	3/6	4/-	5/-	7/6	8/-	12/-	21/-
Frames with Pin ,,	4/9	5/6	5/9	8/6	13/6	18/3	23/-
Springs ... ... ,,	6d.	6d.	1/3	1/6	1/6	1/9	2/-

PIPE WRENCHES

Williams' "Bull Dog" Wrenches (Made in U.S.A.)

For Pipe and Rounds

Single End Pattern



Double End Pattern

Single Head Pattern Nos. 2 to 5½

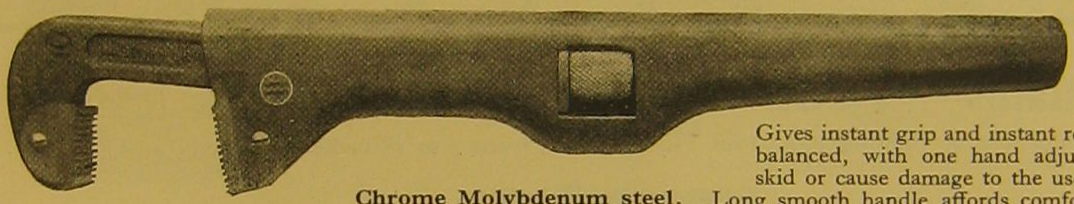
The handles of Nos. 2 and 2½ are concave. Drop-forged and oil tempered.

No.	2	2½	3	3½	4	4½	5
Capacity,							
Pipe, ins.	¼ to ¾	⅜ to 1	½ to 1¼	½ to 1½	¾ to 2	1 to 2¼	2 to 3
,, Rounds ,,	⅛ to 1	⅛ to 1¼	¾ to 1½	¾ to 1¾	1 to 2¼	1¼ to 2¾	2¼ to 3½
Length overall inches ...	9	12½	16	18¾	22	24	27
Price, each	**4/2**	**6/3**	**8/4**	**10/5**	**12/6**	**16/8**	**20/10**

Double Head Pattern

Made of high carbon steel, drop-forged and oil tempered. Capacity, pipe ⅛ to ¾ ins. Rounds 5/16 to 1 in. Length overall 10 ins.

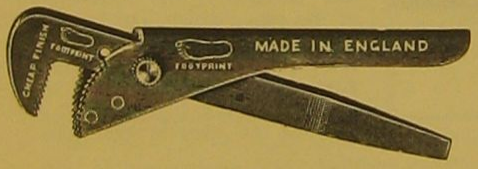
Price ... ... 6/3 each



"Master"-Grip Pipe Wrench

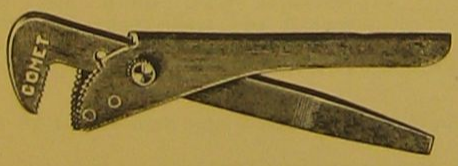
Gives instant grip and instant release. Centrally balanced, with one hand adjustment, will not skid or cause damage to the user. **Jaws are of Chrome Molybdenum steel.** Long smooth handle affords comfortable grip. Size, Length 19 ins., Capacity, ⅛–2½ ins. **Price ... ... 16/- each**

"Footprint" All-Steel Adjustable Pipe Wrenches



No. ...	698–4"	698–5¾"	698–7"	698–9"	698–12"	698–14"	698–16"	698–21"
Length ins.	4	5¾	7	9	12	14	16	21
Capacity ,,	1/16–1	1/16–1½	1/16–1½	⅛–2½	¼–3	¼–3	½–3¾	½–4½
Price, per doz., Black	**17/-**	**19/-**	**22/6**	**35/6**	**55/-**	**67/-**	**110/-**	**144/-**

COMET Adjustable Pipe Grips (Foreign)



No. 800

Size—length	6	7	9	12 ins.
Capacity	1	1¼	1½	2½ ins.
Price	**12/-**	**15/-**	**21/-**	**36/- per doz.**

The C.T. Chain Pipe Wrench (British Made)

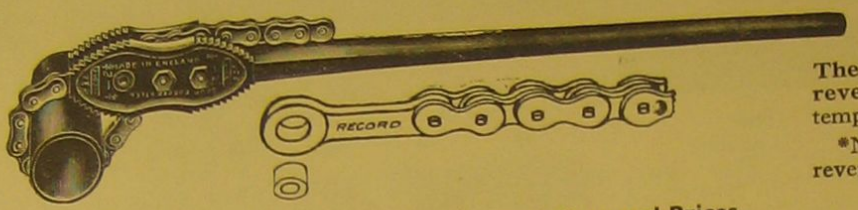
A master wrench with a powerful grip. Invaluable to motorists, Engineers, Agriculturalists, etc. Tooth by tooth ratchet action, which is indespensable in awkward places. Simple—yet efficient.

Sizes and Prices

Length	5	8	11	14	20	28	36 ins.
Grips diam.	1⅜	2¼	3	4⅛	6	9	11½ ins.
Price	**1/-**	**2/3**	**4/6**	**9/-**	**17/6**	**25/-**	**32/6 each**

CHAIN PIPE WRENCHES

"Record" Chain Pipe Wrenches (British Made)



These Pipe Wrenches have flat link high-tensile steel chains of great strength.

The jaws are of the double-ended reversible type, carefully hardened and tempered to ensure long life.

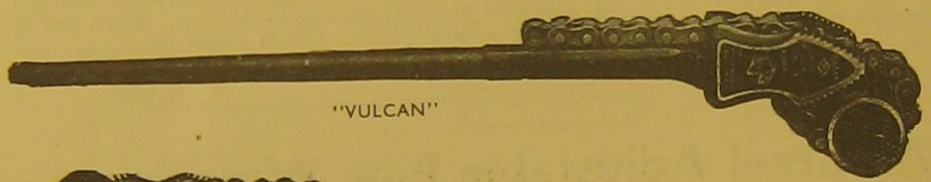
*No. 216 Wrench supplied with non-reversible jaws.

Sizes and Prices

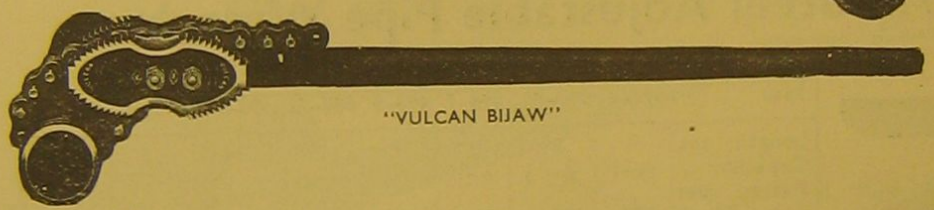
No.	230	231	232	233	233½	234	235	*216
Capacity ... ... Ins.	⅛ to ¾	⅛ to 1½	¼ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12	4 to 18
Length Overall ... ... ,,	14	20	27	37	44½	50½	64½	87
Approximate Weight ... Lbs.	2⅜	5¾	10	16	24	32	50	140
Price ... ... each	**21/-**	**29/-**	**41/6**	**58/6**	**75/-**	**91/6**	**150/-**	**333/6**
Extra Jaws ... per pair	**8/3**	**14/6**	**23/-**	**33/3**	**39/6**	**45/9**	**62/6**	**133/6**
Extra Chains ... ... each	**6/3**	**8/3**	**12/6**	**21/-**	**29/-**	**37/6**	**62/6**	**166/6**
Extra Studs & Nuts per Set	**1/9**	**2/-**	**3/-**	**3/9**	**4/6**	**5/9**	**7/6**	**10/6**
Extra Handles ... ... each	**7/-**	**10/-**	**13/-**	**18/-**	**24/-**	**30/-**	**53/-**	**130/-**

Williams' "Vulcan" Chain Pipe Wrenches (Made in U.S.A.)

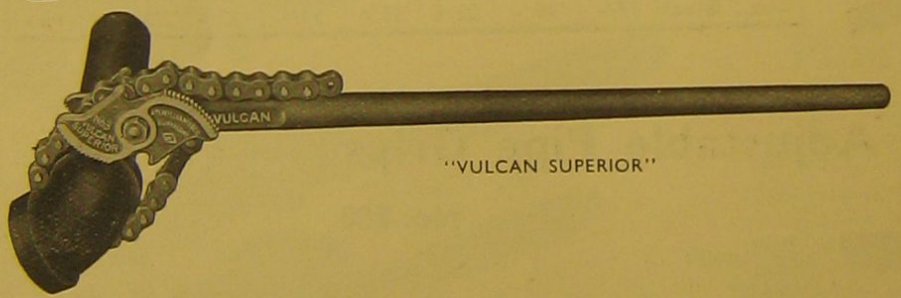
For Turning or Holding Pipe, Pipe Fittings, etc., from ⅛ to 18 inches diameter.



"VULCAN"



"VULCAN BIJAW"



"VULCAN SUPERIOR"

These Wrenches are strong and durable, being wholly from wrought steel; the drop-forged jaws are of saw temper, and the teeth can be sharpened by filing.

The pressure of the teeth is in a line tangent to the circumference of the pipe, which, combined with the encircling grip of the chain, prevents crushing. They are fully guaranteed, and nothing is spared in manufacture that adds to their working and wearing qualities.

Parts are interchangeable and replaceable.

"Vulcan" is a single-ended jaw wrench.

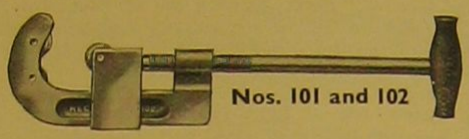
"Vulcan Bijaw" has double-ended reversible jaws, which may be quickly and easily changed end for end as the teeth first in use wear, thus doubling the life of the jaws.

"Vulcan Superior" is a combined tool; the design embodying the V recess in the jaws, enables a large number of grips or "bites" to be obtained on both pipes and fittings.

"VULCAN" ... ... No.	**10**	**11**	**12**	**13**	**13½**	**14**	**15**	**16**
"VULCAN BIJAW" ,,	**30**	**31**	**32**	**33**	**33½**	**34**	**35**	**—**
"VULCAN SUPERIOR" ,,	**0**	**1**	**2**	**3**	**3½**	**4**	**5**	**—**
Capacity ... ... Ins.	⅛ to ¾	⅛ to 1½	¼ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12	4 to 18
Length ... ... ,,	13¾	20	27	37	44½	50½	64½	87
Weight ... ... Lbs.	2	5¾	10	17	24	31	52	137
Tensile Strength of Flat Link Chain ... ... ,,	3,600	6,700	9,800	12,500	14,300	15,700	21,800	40,000
Prices, Either Pattern ...	**20/10**	**29/2**	**41/8**	**58/4**	**75/-**	**91/8**	**150/-**	**333/4**
Extra Jaws, either kind, per pair	**8/4**	**14/7**	**22/11**	**33/4**	**39/7**	**45/10**	**62/6**	**133/4**
Extra Flat Chain ... each	**6/3**	**8/4**	**12/6**	**20/10**	**29/2**	**37/6**	**62/6**	**166/8**

PIPE CUTTERS AND TUBE EXPANDERS

"Record" Three-Wheel Pipe Cutters (British Made)



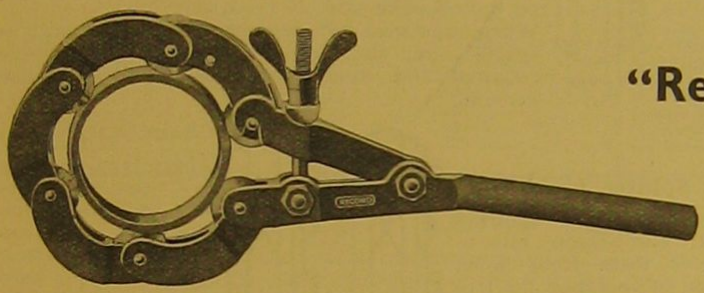
Nos. 101 and 102

This type of Pipe Cutter is particularly suitable for cutting pipes in confined places.
All parts are made from best materials; the cutter wheels and wheel pins being of steel carefully hardened and tempered.
Each "Record" Pipe Cutter is tested for accuracy in cutting.

Nos. 103 and 106

Sizes and Prices

No.	Cuts Pipe Ins.	Approx Weight Lbs.	Price Each Complete	Wheels Per Doz.	Pins Per Doz.	Hooks or Bodies Each	Slide and Wheel Each	Handle & Screw Each
101	$\frac{1}{8}$ to 1	3	18/9	12/6	4/3	7/3	3/3	4/3
102	$\frac{1}{2}$,, 2	5	25/-	15/-	4/3	10/9	4/3	5/3
103	$1\frac{1}{2}$,, 3	$8\frac{1}{2}$	42/-	20/-	4/3	19/-	8/3	9/6
104	$2\frac{1}{2}$,, 4	14	84/-	25/-	8/3	39/6	18/9	18/9
105	4 ,, 6	23	125/-	37/6	8/3	57/3	29/3	29/3
106	6 ,, 8	28	166/-	37/6	8/3	83/6	35/6	38/6



"Record" Link Pipe Cutters

(British Made)

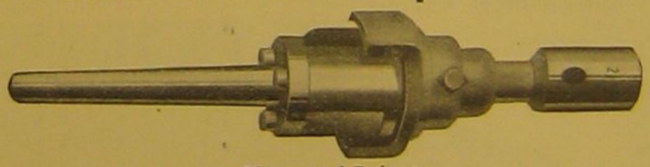
These "Jones" type Pipe Cutters are very useful to engineers on gas and water work, as they can be easily operated in confined places.
Their cutting range can also be increased by simply adding another link and cutter wheel.

Sizes and Prices

No.	To Cut Pipe Ins.	Number of Wheels	Price Each	No.	To Cut Pipe Ins.	Number of Wheels	Price Each
045	$\frac{1}{2}$ to 1	3	£1 7 6	46	5 to 6	5	£3 5 0
	$\frac{1}{2}$,, $1\frac{1}{2}$	4	1 11 6		5 ,, 7	6	3 12 6
	$\frac{1}{2}$,, 2	5	1 15 6		5 ,, 8	7	4 0 0
	2 ,, 3	5	2 0 0		5 ,, 10	8	4 7 6
	2 ,, 4	6	2 5 0		5 ,, 11	9	4 15 0
	2 ,, 5	7	2 10 0		5 ,, 13	10	5 2 6
*45	2 ,, 6	8	2 15 0				
	2 ,, 7	9	3 0 0				
	2 ,, 8	10	3 5 0				

***No. 45A.**—Three short links and three wheels to increase cutting range of No. 45 down to $\frac{1}{2}$ inch 12/6
Sizes to cut a range of larger pipe sizes can be supplied when required.
Extra Wheels.—For Nos. 045 and 45 ... ... 1/6 each; No. 46 ... ... 2/3 each
Extra Pins.—For Nos. 045 and 45 ... ... 6d. each; No. 46 ... ... 7d. each.

Dudgeon Pattern Tube Expander, No. 31 (British Made)

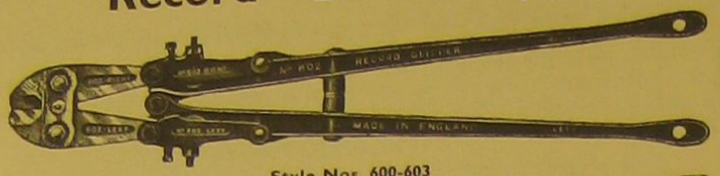


Sizes and Prices

For Tubes		Weight	Price	Extra Rollers	Extra Mandrels	For Tubes		Weight	Price	Extra Rollers	Extra Mandrels
External Diam.	Internal Diam.					External Diam.	Internal Diam.				
Ins.	Ins.	Lbs.	Each	Per Set	Each	Ins.	Ins.	Lbs.	Each	Per Set	Each
$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	20/-	3/-	6/9	$2\frac{5}{8}$	$2\frac{1}{4}$	$7\frac{1}{2}$	37/-	4/-	15/-
$1\frac{5}{8}$	$1\frac{11}{32}$	2	21/6	3/-	7/6	$2\frac{3}{4}$	$2\frac{3}{8}$	$7\frac{3}{4}$	40/-	4/6	15/-
$1\frac{3}{4}$	$1\frac{15}{32}$	$2\frac{1}{2}$	23/-	3/-	8/3	3	$2\frac{9}{16}$	9	48/-	5/3	16/6
$1\frac{7}{8}$	$1\frac{19}{32}$	3	25/-	3/3	9/-	$3\frac{1}{4}$	$2\frac{3}{4}$	12	55/-	6/-	18/-
2	$1\frac{11}{16}$	$3\frac{1}{2}$	27/-	3/4	10/6	$3\frac{1}{2}$	3	$13\frac{1}{2}$	62/-	7/-	21/-
$2\frac{1}{8}$	$1\frac{13}{16}$	$4\frac{1}{2}$	29/-	3/4	12/-	$3\frac{3}{4}$	$3\frac{1}{4}$	15	69/-	7/9	24/-
$2\frac{1}{4}$	$1\frac{15}{16}$	$4\frac{3}{4}$	31/-	3/9	12/-	4	$3\frac{7}{16}$	18	76/-	8/6	27/-
$2\frac{3}{8}$	$2\frac{1}{16}$	$5\frac{3}{4}$	33/-	3/9	13/6	$4\frac{1}{4}$	$3\frac{11}{16}$	22	90/-	10/-	33/-
$2\frac{1}{2}$	$2\frac{3}{16}$	$6\frac{1}{4}$	35/-	4/-	13/6	$4\frac{1}{2}$	$3\frac{15}{16}$	26	110/-	12/-	37/6

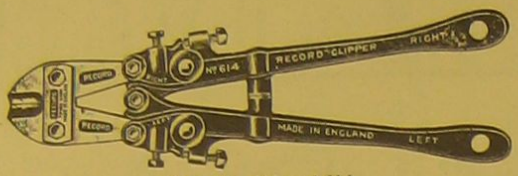
BOLT CROPPERS AND NUT SPLITTERS

"Record" Bolt Croppers and Nut Splitters (British Made)



Style Nos. 600-603

Style No. 604



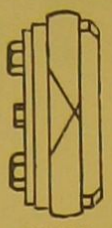
Style No. 610 and 614

"Record" Bolt Clippers are of Standard American design and all parts are identical and interchangeable. These tools are high grade quality and finish and are guaranteed against defect in material or workmanship.

Jaws are of heat-treated tool steel, each jaw being thoroughly tested before assembly.

The top and bottom straps and jaws are precision ground all over to give perfect fit and smooth working.

Jaw Styles



CLIPPER CUT

Clipper Cut Jaws.

This is the standard type of Jaw and is suitable for general purposes. It is always supplied unless another type of Jaw is specified.

Clipper Cut Jaws are designed for close cutting, having a short bevel on the one side and a long bevel on the opposite side.

When other than soft materials are to be cut, such as spring wire, etc., Jaws of a special temper are required and should be clearly specified when ordering.

CENTRE CUT

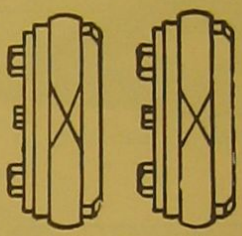
Centre Cut Jaws.

These Jaws are bevelled equally on each side, bringing the Cutting Edge in the middle. This form gives additional strength for heavy work and hard materials.

SIDE NUT SPLITTER

Nut Splitter Jaws

These are for splitting square and hexagon nuts to remove them from bolts. When in operation the tool is in line with the bolt.



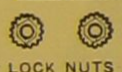
SOFT CHAIN CUTTER HARD

Chain Cutter Jaws

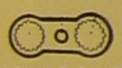
These Jaws are made in 2 types, viz., to cut soft or hard chain. The Jaws for soft chain are not suitable for cutting hard chain, and requirements should be clearly stated when ordering.

BOLT CLIPPERS						SOFT CHAIN CUTTERS			HARD CHAIN CUTTERS			All Styles Length Overall Ins.	All Styles Approx Weight Lbs.			
No. Clipper Cut Jaws	Price	No. Centre Cut Jaws	Price	Cuts Bolts Ins.	Cut Soft Steel Rod Ins.	No. Soft Cutter	Price	Cuts Chain Links Ins. Diam.	No. Chain Cutter	Price	Cuts Chain Links Ins. Diam.			No. Nut Splitter	Price Each	Splits Nuts Ins.
600	16/6	600CC	16/6	⅜	½	600SCC	20/-	½	600HCC	22/-	½	18	3¼	600SNS	22/-	⅜
601	21/-	601CC	21/-	½	⅜	601SCC	25/-	⅜	601HCC	28/-	⅜	24	5¼	601SNS	26/-	½
602	29/6	602CC	29/6	½	½	602SCC	33/6	½	602HCC	37/-	½	30	8½	602SNS	35/6	½
603	37/6	603CC	37/6	½	½	603SCC	41/6	½	603HCC	46/-	⅜	36	12½	603SNS	44/-	½
604	50/-	604CC	58/-	½	½	604SCC	62/6	½	604HCC	69/6	½	42	19	604SNS	64/6	½
610	11/6	610CC	11/6	⅜	½	610SCC	14/6	½	610HCC	16/6	½	10	1¾	—	—	—
614	12/6	614CC	12/6	½	⅜	614SCC	15/6	⅜	614HCC	17/6	⅜	14	2½	614SNS	18/-	½

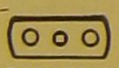
Spare Parts for "Record" Bolt Croppers and Nut Splitters



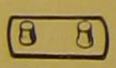
LOCK NUTS



LOCKING PLATE



TOP STRAP



BOTTOM STRAP

ADJUSTING ARM SCREW

BUFFERS

To Suit Nos.		600	601	602	603	604	610	614
Jaws. Bolt Clipper, (Clipper Cut or Centre Cut	pair	8/6	10/6	14/6	18/6	22/6	6/-	7/-
,, Side Nut Splitter	,,	15/-	16/6	21/6	26/6	34/-	—	12/-
,, Soft Chain Cutter	,,	13/-	15/-	19/-	23/6	32/6	9/-	9/6
,, Hard Chain Cutter	,,	14/6	16/6	21/6	26/6	36/6	10/-	11/-
Bottom Strap with Bolts	each	2/6	3/3	3/9	4/6	—	—	—
Top Strap	,,	/8	1/3	2/-	2/6	3/3	/6	/7
Locking Plate	,,	/8	1/-	1/3	1/6	—	—	—
Locking Plate Bolt	,,	/4	/4	/4	/4	—	—	—
Lock Nuts	pair	/8	1/-	1/3	1/6	—	—	—
Handles (Complete with Fittings) ...	,,	12/-	14/6	20/6	26/6	—	7/6	9/-
Handle (Left or Right), without Fittings ...	each	2/6	3/6	6/3	8/6	10/9	2/-	2/3
Adjusting Arm (Right or Left) and Rivet	,,	1/8	2/-	2/3	3/-	—	—	—
Centre Connecting Bolt (Right Thread) ...	,,	/4	/5	/5	/6	/9	/3	/4
Connecting Bolt (Right or Left Side) ...	,,	/4	/5	/5	/6	/9	/3	/4
Eye Bolt, Nut, and Rivet	pair	1/3	1/8	2/-	2/3	—	—	—
Buffers, Washers, and Rivets	,,	1/3	1/8	2/-	2/3	2/6	/6	/6
Arm Adjusting Screws	,,	/8	/9	/10	1/-	—	—	—

***No. 604 Centre Cut Jaws ... 28/- pair.**

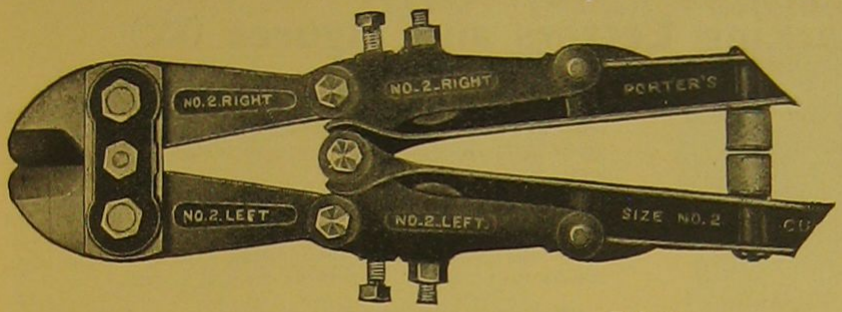
ADJUSTING ARM & RIVET (RIGHT)

EYE BOLT & NUT & RIVET

LOCKING PLATE BOLT & NUT

BOLT CROPPERS

Porter "New Easy" Bolt Croppers (Made in U.S.A.)



All parts made in duplicate to standard Gauges. The simple turn of a screw. provides ample adjustment (from $\frac{1}{1000}$ inch up) always keeping the cutting edges in contact during life of the jaws. **The handles are japanned malleable iron,** tough and strong; buffers are high quality rubber springs.

The jaws special tempered high grade tool steel for cutting annealed bolts and rivets.

Jaws tempered for cutting hard materials when specified.

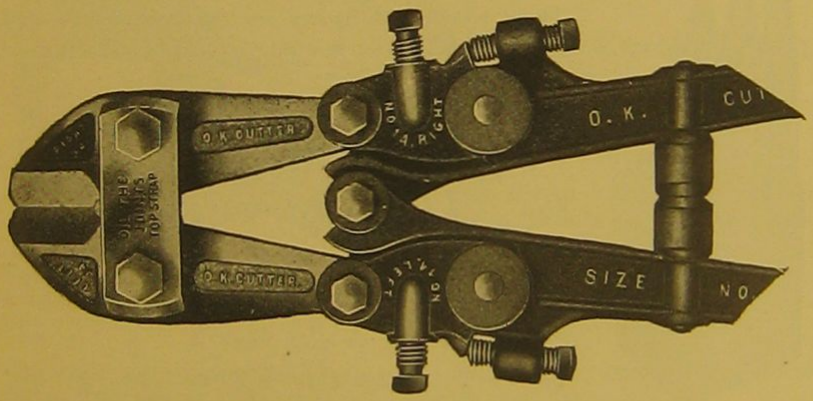
					Prices
No. 0.	Length,	18 ins.;	weight,	3¼ lbs.;	for $\frac{5}{16}$ inch bolts ... ... **16/6 each**
,, 1.	,,	24 ,,	,,	5¼ ,,	,, $\frac{3}{8}$,, ... **21/- ,,**
,, 2.	,,	30 ,,	,,	8½ ,,	,, $\frac{1}{2}$,, ... **29/6 ,,**
,, 3.	,,	36 ,,	,,	12½ ,,	,, $\frac{5}{8}$,, ... **37/6 ,,**

PRICES OF EXTRA PARTS

"New Easy" No.	0	1	2	3	"New Easy" No.	0	1	2	3
Cutting Jaws, per pair	8/6	10/6	14/6	18/6	Pair Handles, complete	12/-	14/6	20/6	26/6
One Cutting Jaw	4/3	5/3	7/3	9/3	One Handle, no parts	2/6	3/6	6/3	8/6
Bottom Strap	2/6	3/3	3/9	4/6	Adjusting Sections, each	1/8	2/-	2/3	3/-
Top Strap	-/8	1/3	2/-	2/6	Steel Adjusting Screws, per pair	-/8	-/9	-/10	1/-
Lock Nuts, per pair	-/8	1/-	1/3	1/6	Rubber Buffers, with washers and rivets, per pair	1/3	1/8	2/-	2/3
Lock Plate	-/8	1/-	1/3	1/6	Connecting Bolt, right or left thread, each ...	-/4	-/5	-/5	-/6
Lock Plate Bolt	-/4	-/4	-/4	-/4	Eye Bolts, with nuts and rivets, per pair	1/3	1/8	2/-	2/3

Porter "O.K." Bolt Clippers (Made in U.S.A.)

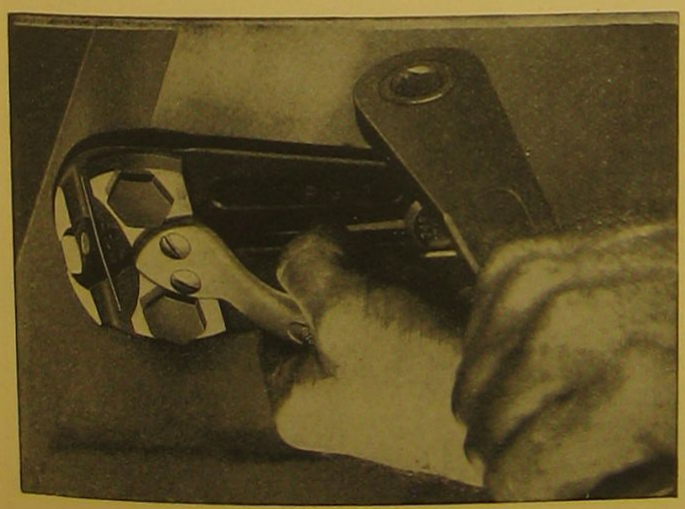
The O.K. is the most advanced type of construction and possesses certain desirable features which make possible the changing of cutting jaws very quickly. **Adjustment is of the simplest type**—and bolts in the head will not bend or work loose. **All parts are interchangeable**—ample adjustment provided to take up wear on cutting edges.



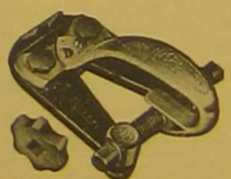
No.	**10**	**14**
Length, ins.	10	14
Weight, lbs.	1½	2¼
Cuts bolts, in.	$\frac{9}{16}$	$\frac{11}{16}$
Price, each	**11/6**	**12/6**

Prices of Extra Parts

"O.K." No.	10	14
Pair Handles, complete ...	7/6	9/-
Right or Left Section and Rivet each	1/-	1/3
Right or Left Jaw ... ,,	3/-	3/6
Top Strap	-/6	-/7
Bottom Strap	-/8	-/9
Jaw Bolt, Right or Left Thread each	-/8	/10
Connecting Bolt, Right or Left Thread ... ... each	-/3	-/4
Buffer, Rivet, and Washer ...	-/6	-/6
Handle Set Screw ... each	-/3	-/4
Section Set Screw ... ,,	-/3	-/4



Porter "Compact" Bolt Cropper and Nut Splitter (Made in U.S.A.)



ANGULAR CUTTER TYPE

END CUTTER TYPE

This special cropper—7¾ ins. long will cut a ¼ in. bolt in the thread or a $\frac{5}{16}$ in. rod. Combines great power and ease of operation to a remarkable degree.

Construction is simple, consisting of a pair of cutting jaws actuated by a transverse power screw which is easily turned by a ratchet wrench being applied to the ½ inch square section at either end of the screw.

Where a full swing of wrench is possible a complete cut is made in about 8 strokes.

Price—with either Style Jaw £1 7 0 each

A British made **Spanner-Reliable No. BC** 1, 8½ ins. long, with ¼ in. sq. hole. ... **11/9 each**

"Imperial" Marking Letters and Figures (British Made)

As accurate and uniform as typewriter type, these letter and figure stamps are made of specially selected high-grade steel electrically hardened to ensure longest possible wear.

The stamps are interchangeable, and with all shanks finished within ·005 in. and characters almost central with the shank, they can be used safely with a straight edge, resulting in uniform lines of letters and figures.

"Figure" Set contains 10 figures, both a 6 and 9 being included to give equal wear.

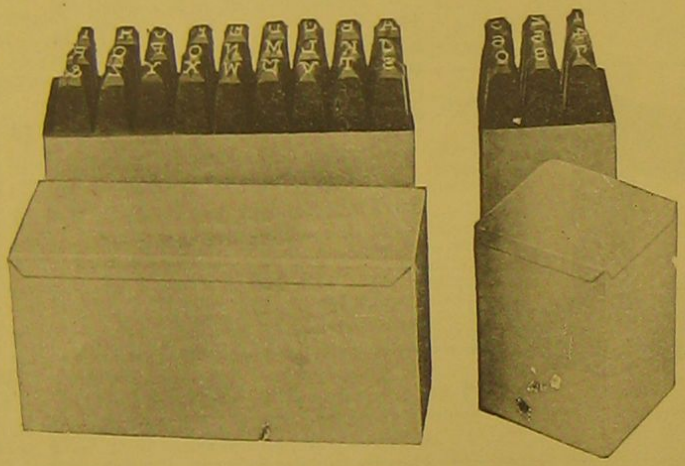
"Alphabet" Set contains 26 alphabet characters and the sign &.

Sizes and Prices

Size of character, inch ...	1/32	3/64	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	1/2
Size of Shank, ins			1/4 × 2 1/2					5/16 × 2 3/4			1/2 × 3 1/2	9/16 × 3 1/2	
Price per Set of 10 Figures ...	5/-	5/-	4/6	4/9	4/9	4/9	5/9	5/9	7/-	7/-	8/-	12/-	15/6
Price per Set of 27 Alphabet characters	13/6	13/6	12/-	13/-	13/-	13/-	16/-	16/-	19/6	19/6	24/6	37/6	47/6
Price per Single Figure or Letter	/8	/8	/8	/8	/8	/8	/9	/9	/10	/10	1/1	1/5	2/-

(Reversed Stamps, for moulds can be supplied at plus 50% on prices listed above)

COMET Cast-Steel Letter and Figure Punches (Foreign)



These letters and figures are made from cast steel, and are suitable for marking steel, iron, brass, wood, leather, etc.

Each set is packed complete in a tin box.

Prices, Set of 27 Letter Stamps

Sizes	1/16, 3/32, 1/8	5/32,	3/16	7/32, 1/4	5/16	3/8	7/16	1/2	in.
Prices	6/-	6/6	7/-	9/-	10/-	12/-	13/6	17/-	Set.

Prices, Set of 9 Figure Stamps

Sizes	1/16, 3/32, 1/8	5/32	3/16	7/32, 1/4	5/16	3/8	7/16	1/2	in.
Prices	2/-	2/3	2/6	3/-	3/6	4/-	5/-	6/-	Set.

Cast-Steel Name Punches (British Made)

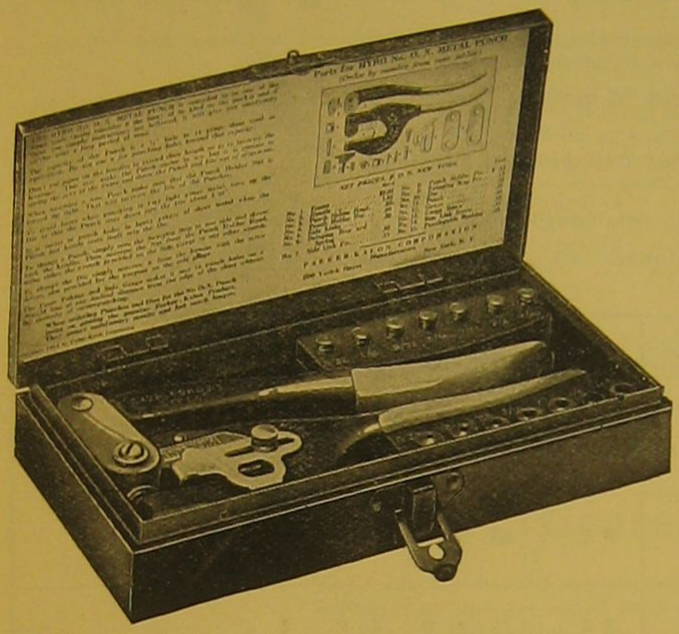
Light Cast-steel Name Stamps, for use on steel or wood, can be made up to customers' own requirements, and delivery made in 2 to 3 days.

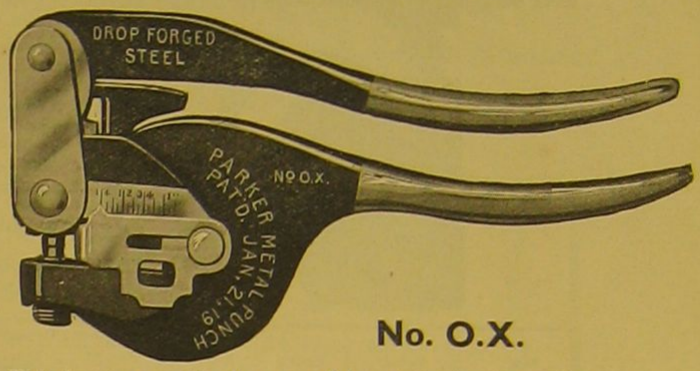
Price Each, inclusive of Forging

Size In.	Number of Letters										
	2	3	4	5	6	7	8	9	10	11	12
1/16	1/-	1/3	1/10	2/1	2/6	2/9	3/3	3/7	4/-	4/5	4/11
1/8	1/-	1/5	1/10	2/3	2/7	3/-	3/6	4/-	4/3	4/9	5/3
3/16	1/4	1/11	2/7	3/3	3/9	4/6	5/6	6/-	7/-	7/6	8/6
1/4	1/7	2/7	3/3	4/-	5/-	5/9	6/9	7/6	8/3	9/-	10/-
5/16	2/1	3/-	4/6	5/3	6/3	7/6	8/9	10/-	11/-	12/-	13/-
3/8	2/9	4/3	6/-	7/-	8/9	10/-	11/3	13/3	14/3	15/9	17/-
1/2	3/9	5/6	7/3	9/3	10/9	13/6	15/-	—	—	—	—

HAND PUNCHES

"Hyro" Metal Punches (Made in U.S.A.)





No. O.X.

This is an exceptionally powerful tool for its size and will easily punch holes **up to ¼ inch diameter in 14 gauge steel** or equivalent in the centre of a 2½ inch circle.

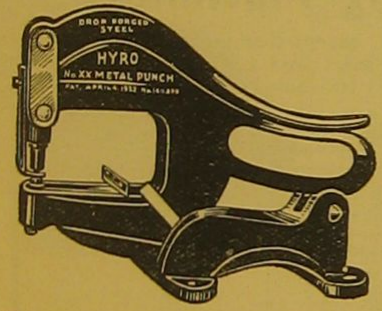
The frame and handle are drop-forged steel and all working parts are of tool steel, hardened and tempered.

The front pointer and side gauge combination provide an easy method for locating holes. The side gauge can also be used as a screwdriver and wrench in changing the dies and punches.

Size overall, 8 inches, Weight 2⅝ lbs.

Prices

Complete in steel case, with 7 punches and 7 dies (one each, 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 17/64") **£1 16 0**
Extra Punches and Dies ... **3/- each**; **Extra Punches only** ... **1/6 each**; **Extra Dies only** ... **1/6 each.**



No. XX Combination Bench and Hand Punch

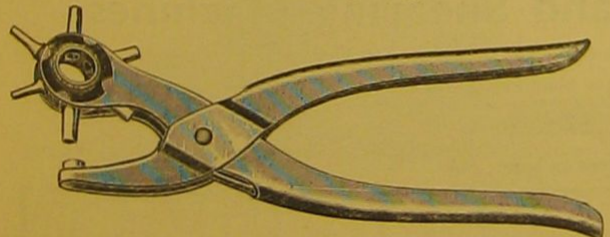
The capacity of this punch is ¼ **inch hole in 14 gauge** sheet steel, ⅜ **inch hole in 16 gauge** sheet steel and 17/32 **inch hole in 18 gauge** sheet steel, or equivalents punched in the centre of a 7 inch circle.

The wide throat which has an opening 3½ ins. deep by 2⅛ ins. high permits the punching of holes in irregular shapes, forms and intricate sections as well as in flat sheets. The punch is released from its stand by simply pulling out the pin.

Equipped with a gauge and automatic stripper, both of which are adjustable and easily removed.
Punches and dies can be furnished in any of the following sizes—1/8, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 25/64, 13/32, 7/16, 15/32, 1/2, and 17/32 inch.
Size overall ... ... 9 ins. Weight ... ... 4½ lbs.

Prices

Complete, with Bench Stand, Gauge, 1 Punch and 1 Die, any stock size up to, from ⅛ to 17/32 inch ... **£2 12 0 each**
Extra Punches or Dies, sizes ⅛ to 7/32 inch inclusive ... ... **0 2 6 ,,**



Comet Revolving Head Punch Pliers No. 6097G (Foreign)

Fitted with 6 punches each of a different diameter. **The revolving head is instantly adjusted,** and held in place by a powerful spring. Stamped steel, bright finish.

No. 6097G. 8 inches ... ... **3/4 each**

Comet Hollow Round Punches (Foreign)

For Leather and other soft materials. Forged steel, Knurled Round Shank.

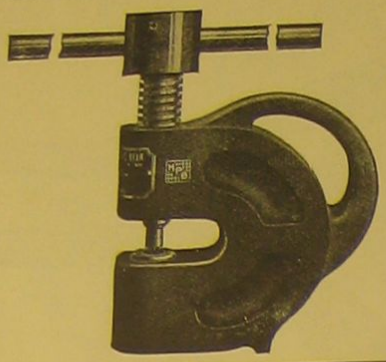
Sizes	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	ins.
Price	3/-	3/6	4/-	4/6	5/-	5/6	6/-	7/-	8/6	11/-	per doz.

Comet Wad Punches (Foreign)

For Leather and other soft materials. Best quality steel.

Sizes	¼	5/16	3/8	7/16	½	9/16	⅝	¾	⅞	1	1¼	1½	ins.
Price	13/-	14/-	15/-	16/-	18/-	19/-	21/-	28/-	35/-	44/-	64/-	86/-	per doz.

HAND PUNCHING MACHINES



"Handy" Punching Bears (Foreign)

These Machines are made from best toughened cast steel, and will punch holes up to their listed capacity without leaving a burr.

They are light to carry, they punch round holes, and all parts are interchangeable.

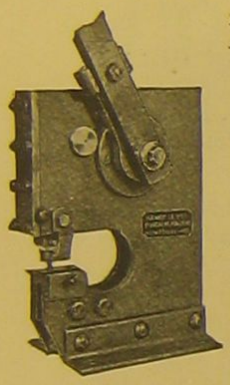
They are also suitable for punching out rivets. Strippers supplied without extra charge.

For punching small angles the machines are supplied with ground-off faces.

Supplied complete with one punch and die.

No.	Price Complete	Extra Dies	Extra Punches	Punching Capacity: Round Holes Ins.	Punching Capacity: Through Iron Plates Ins.
B 0	£2 5 0	2 6	1 6	$\frac{1}{8}$ to $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$	$\frac{1}{4}$, $\frac{7}{16}$, $\frac{3}{32}$
B 1	£2 15 0	2 6	1 6	$\frac{1}{8}$ to $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$	$\frac{1}{4}$, $\frac{7}{16}$, $\frac{1}{8}$
B 2	£4 10 0	4 6	2 6	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	$\frac{1}{2}$, $\frac{3}{8}$, $\frac{1}{4}$
B 2A	£4 10 0	4 6	2 6	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	$\frac{1}{4}$, $\frac{3}{16}$, $\frac{1}{8}$
B 3	£5 0 0	4 6	2 6	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	$\frac{1}{4}$, $\frac{3}{16}$, $\frac{1}{8}$
B 4	£5 0 0	4 6	2 6	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	$\frac{1}{2}$, $\frac{3}{8}$, $\frac{1}{4}$

"Handy" Lever Punching Machines

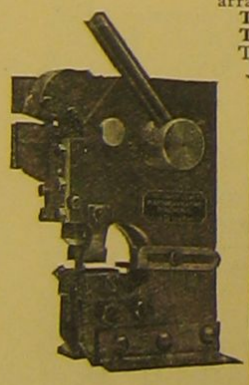


These Machines are similar to the style BC Machines shown below, except that they are not arranged for shearing. **The frame is made of wrought steel,** the ram is solid, and a deep gap is provided. All parts are interchangeable. Supplied complete with 2 punches and 1 two-hole die.

Types H 1 and BB 101 are fitted with an adjustable gauge, which enables holes to be punched in straight lines.
Types H 1 to H 6 and BB 105 to BB 107 are geared, and the largest capacities can be punched by one man.
Special Die Holders are supplied for punching girders, channels, etc. **Prices on application.**

Punches Holes up to ... ins.	$\frac{5}{16}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	1
,, through Iron Plate ,,	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Diam. of largest hole punched ,,	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{5}{16}$	$1\frac{3}{8}$
Diam. of largest hole punched with Special Die Holders ... ins.	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$
Depth of Gap from Centre of Punch ... ... ,,	3	$4\frac{5}{8}$	$5\frac{7}{8}$	$6\frac{1}{4}$	$7\frac{1}{8}$	$8\frac{1}{2}$	11
Approximate Weight ... lbs.	33	70	132	187	330	551	880
No.—British Make	**H 1**	**H 2**	**H 3**	**H 4**	**H 5**	**H 6**	—
Price ,, ,, ...	**£8 5 0**	**£11 10 0**	**£16 10 0**	**£22 10 0**	**£28 0 0**	**£54 0 0**	—
No.—Foreign Make	**BB 101**	**BB 102**	**BB 103**	**BB 104**	**BB 105**	**BB 106**	**BB 107**
Price ,, ,, ...	**£5 12 6**	**£8 2 6**	**£14 8 0**	**£18 0 0**	**£28 16 0**	**£46 11 3**	**£65 3 6**
Extra. Punches for H-BB ...	0 1 6	0 1 6	0 2 6	0 3 0	0 4 0	0 4 9	—
,, **Dies for H-BB**	0 4 0	0 4 0	0 6 0	0 6 0	0 6 0	0 12 0	—

"Handy" Lever Punching and Shearing Machines



These Machines are for punching various shaped holes in sheet metal and shearing off bars, etc. The frame is made of wrought steel.

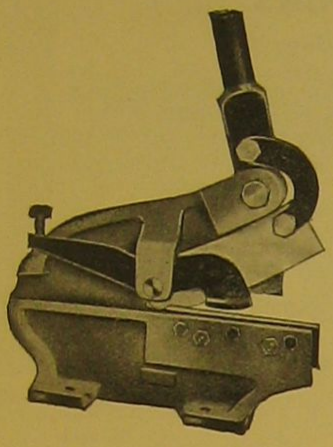
They are fitted with a solid ram, and also have a deep gap which enables the work to be easily handled.

The shears are set at right angles, so that any length of bar can be cut. All parts are interchangeable, and a cutting-off arrangement is furnished. Supplied complete with 1 punch and 1 two-hole die.

Types J 1 and BC 101 are fitted with adjustable gauge.
Types J 2 to J 6 and BC 105 to BC 107 are geared, and the largest capacities can be punched and sheared easily by one man. This machine can also be supplied without shears. **Prices on application.**

Punches Holes up to ... ins.	$\frac{5}{16}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	1
,, through Iron Plate up to ,,	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Diam. of largest hole punched ,,	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{5}{16}$	$1\frac{3}{8}$
Diam. of largest hole punched with Special Die Holders ,,	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{8}$
Depth at Gap ... ... ,,	3	$4\frac{5}{8}$	$5\frac{7}{8}$	$6\frac{1}{4}$	$7\frac{1}{8}$	$8\frac{1}{2}$	11
Cuts Flat Iron ... ... ,,	$\frac{3}{32}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{13}{32}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{5}{8}$
,, Rod and Square Iron ... ,,	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{11}{16}$	$\frac{13}{16}$	$1\frac{1}{16}$
,, L. & T. Iron ... ... ,,	$1\frac{3}{16} \times \frac{3}{32}$	$1\frac{7}{16} \times \frac{5}{32}$	$2\frac{1}{4} \times \frac{3}{16}$	$2\frac{3}{4} \times \frac{3}{16}$	$2\frac{3}{4} \times \frac{3}{8}$	$2\frac{3}{4} \times \frac{1}{2}$	$3\frac{1}{2} \times \frac{1}{2}$
Length of Knives ... ... ,,	2	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{8}$	$4\frac{1}{2}$
Approximate Weight ... lbs.	36	77	154	210	342	606	904
No.—British Make	**J 1**	**J 2**	**J 3**	**J 4**	**J 5**	**J 6**	—
Price ,, ,, ...	**£8 15 0**	**£11 17 6**	**£17 0 0**	**£22 10 0**	**£33 0 0**	**£63 0 0**	—
,, **Extra Knives per pair**	0 6 8	0 11 6	0 15 0	0 19 0	1 6 0	1 9 6	—
No.—Foreign Make	**BC 101**	**BC 102**	**BC 103**	**BC 104**	**BC 105**	**BC 106**	**BC 107**
Price ,, ,, ...	**£8 11 0**	**£10 16 0**	**£18 14 6**	**£22 16 0**	**£36 0 0**	**£59 5 0**	**£80 17 0**
,, **Extra Knives per pair**	0 6 8	0 11 6	0 15 0	0 19 0	1 6 0	1 9 6	—
Extra Punches for J-BC	0 1 6	0 1 6	0 2 6	0 3 0	0 4 0	0 4 9	—
,, **Dies for J-BC**	0 4 0	0 4 0	0 6 0	0 6 0	0 6 0	0 12 0	—

The "Handy" Shearing Machine



This Tool is invaluable to all engineers, plate-workers, etc., and can be easily operated, requiring but little strength.

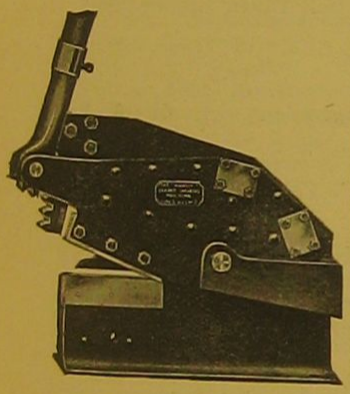
With it sheet metal of any length or width can be cut, and the cutting of thinnest metal can be accomplished without burr.

The bottom knife is adjustable, and all parts are interchangeable.

The best quality toughened cast steel only is used in the construction of the machine.

Cuts Sheet Metal up to ... ins.	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{1}{8}$
,, Flat Iron up to ... ,,	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{16}$
,, Round and Square up to ,,	$\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Length of Blades ... ... ,,	$4\frac{5}{16}$	$4\frac{3}{4}$	$6\frac{1}{2}$	$8\frac{1}{4}$	$11\frac{3}{4}$
Approximate Weight ... lbs.	18	22	48	61	80
Nos.—British Make ...	—	A 1	A 2	A 3	—
Price ,, ,, ...	—	£4 5 0	£6 10 0	£8 10 0	—
Extra Knives ... per pair	—	1 2 6	1 10 0	1 16 0	—
Nos.—Foreign Make ...	CA 5001	CA 5002	CA 5003	—	CA 5004
Price ,, ,, ...	£1 13 6	£2 10 6	£4 4 0	—	£6 3 6
Extra Knives ... per pair	0 18 0	1 4 0	1 16 0	—	3 0 0

The "Handy" Geared Shearing Machine



These Machines are of robust design and of great strength.

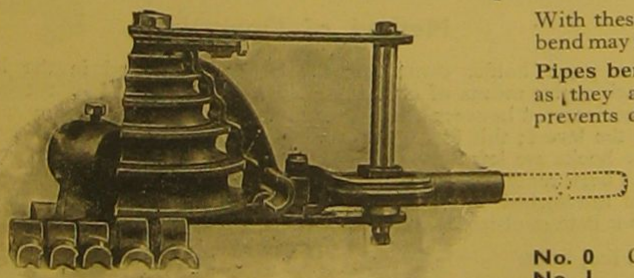
Roller bearings are fitted to the knife carrier, reducing friction and ensuring ease of cutting and freedom from spring of the knife.

The knives are adjustable and of good length, so that when cutting sheets the longest possible cut should be made.

The guides are machined to give free clearance for sheets when passing through the machine.

Cuts Sheet Iron, ins. thick	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{11}{16}$
,, Flat ,, ... ins.	$\frac{7}{32}$	$2\times\frac{5}{16}$	$2\frac{3}{4}\times\frac{3}{8}$	$4\times\frac{1}{2}$	$5\frac{3}{4}\times\frac{11}{16}$	$7\frac{3}{4}\times\frac{7}{8}$	1
,, Round ,, ,,	$\frac{1}{16}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{15}{16}$	$1\frac{3}{16}$	$1\frac{5}{16}$	$1\frac{3}{8}$
,, Square ,, ,,	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{7}{8}$	$1\frac{3}{16}$	$1\frac{3}{16}$	$1\frac{1}{4}$
,, L. & T. ,, ,,	—	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Length of Knives ,,	$5\frac{1}{8}$	$6\frac{1}{4}$	7	$6\frac{5}{16}$	$7\frac{3}{4}$	$7\frac{3}{4}$	7
Weight, about lbs.	44	110	176	310	728	882	1050
Nos.—British Make	—	E 1	E 2	E 3	E 4	E 5	—
Price ,, ,,	—	£13 0 0	£18 10 0	£34 0 0	£77 0 0	£86 0 0	—
Extra Blades per pair	—	1 1 0	1 3 0	1 6 0	2 5 0	2 15 0	—
Nos.—Foreign Make	CA 201	CA 202	CA 203	CA 204	CA 205	CA 206	CA 207
Price ,, ,,	£8 12 9	£12 14 6	£16 16 0	£31 5 0	£55 16 0	£68 14 6	£93 2 6
Extra Knives per pair	1 2 9	1 6 6	1 8 9	1 16 0	2 5 0	3 3 0	3 16 6

The "Limitax" Pipe Bending Machine (British Made)



With these Machines iron pipes can be bent to any angle, and one bend may follow the other in any direction quite close to the last.

Pipes bent on these machines remain solid and circular as they are held and guided at the bending point, which prevents distortion.

The machines are not suitable for copper tubes.

"Hilmor" Machines for Copper Tubes

With these machines copper tubes as thin as 19 gauge can be bent without filling.

No. 0	Complete with $\frac{1}{4}$" formers and guides	£2 12 6
No. 1	,, ,, $\frac{1}{8}$" and $\frac{3}{8}$" ,, ,, ,,	4 0 0
No. 2	,, ,, $\frac{1}{2}$", $\frac{3}{4}$" and 1" ,, ,,	6 0 0
No. 2A	,, ,, $\frac{1}{2}$", $\frac{3}{4}$", 1" and $1\frac{1}{4}$" ,,	8 17 6

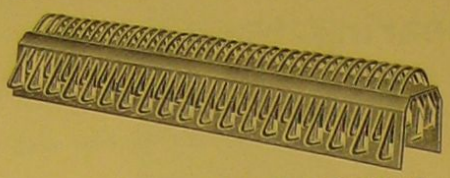
No. 0	Bends. $\frac{3}{8}$ ins. to $\frac{3}{4}$ ins. Pipe (outside diam.) Hot or Cold	£4 10 0
1	,, $\frac{1}{2}$,, ,, $1\frac{1}{4}$,, ,, ,, ,, ,, ...	6 10 0
2	,, $\frac{5}{8}$,, ,, $1\frac{1}{2}$,, ,, ,, ,, ,, ...	7 10 0
3	,, $\frac{5}{8}$,, ,, $1\frac{5}{8}$,, ,, Cold, and $1\frac{3}{4}$ to $2\frac{3}{8}$ ins. Hot	10 0 0
3A	,, $\frac{5}{8}$,, ,, $1\frac{5}{8}$,, ,, (outside diam.), Cold	18 10 0
3B	,, $\frac{5}{8}$,, ,, 2 ,, ,, Cold, and 2 ins. to $4\frac{1}{8}$ ins. Hot	30 0 0
4	,, $1\frac{1}{4}$,, ,, $2\frac{3}{8}$,, ,, Cold, and $2\frac{1}{2}$ ins. to $4\frac{1}{8}$ ins. Hot	22 10 0
4 A	,, $1\frac{1}{4}$,, ,, $4\frac{1}{8}$,, ,, (outside diam.), Hot	21 0 0
4 B	,, $1\frac{7}{8}$,, ,, $4\frac{1}{8}$,, ,, ,, ,, Hot	19 10 0

Types 3B, 4, 4A and 4B if required can be supplied to bend piping up to $3\frac{1}{2}$ in O.D. **at £2 less than prices listed.**

BELT FASTENERS

"Gem" Belt Hooks (British Made)

In Cardboard Holders



SHOWING HOOKS IN CARDBOARD HOUSING, READY FOR ATTACHING TO BELT

"Gem" Flexible Belt Fasteners comprise a series of wire hooks housed in a strong paper frame which ensures perfect alignment when fixing the hooks in the belt. When the hooks are firmly embedded in the belt the paper holder is easily removed with the thumb and forefinger.

The hooks are regularly supplied in boxes containing 162 inches of hooks in 6-inch lengths, and the necessary rawhide pins for connecting.

Nos. 2 and 3 — No. 4 — No. 5 — No. 6

SHOWING SIZES OF HOOKS FOR THICKNESS OF BELTING

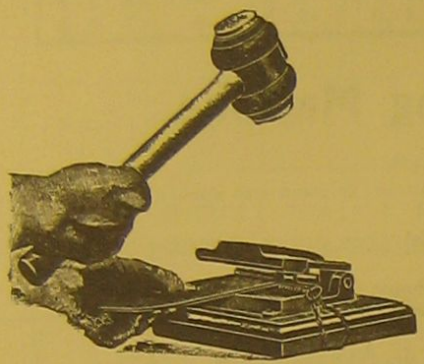
Prices

No.	2	3	4	5	6
For Belts under ins.	3/16	3/16	1/4	3/8	7/16
Price per box	4/–	4/6	4/6	5/6	7/–

Extra Rawhide Pins, 12 ins. long, in bundles of 24 ... **3/9** per bundle

RAWHIDE PINS

"Gem" Hammering Tools (British Made)



"GEM" HAMMERING TOOL

These tools are particularly useful in small shops where a light yet efficient and cheap method of inserting hooks into a belt is required.

In operation they are similar to the large machine described below, the main difference being that the hooks are closed into the belt by a blow from a hammer or mallet. "Clipper" Belt Hooks can be used in this tool.

Prices

4" Tool, for lacing belts up to 4" wide in one operation ...	**£1 0 0**
6" Tool, " " " 6" " " " ...	**1 10 0**
Special Heavy Mallet	**0 6 0**

"Gem" Belt-Lacing Machine (British Made)

"GEM" BELT-LACING MACHINE

This machine provides a very efficient method of fixing the hooks into a belt. **It is light and can be easily carried to a belt** and a 6-inch joint made in one operation in one minute; with a wider belt the operation is repeated; if narrower, the necessary quantity of hooks can be cut to the proper width from the standard card.

The steel hooks are rigidly held and guided in a strong paper frame which is easily detached after the hooks are fast in the belt.

"Clipper" Belt Hooks can be used in this machine.

Method of Operating

The paper holder containing the hooks is secured in the lacing machine by means of a steel pin. The squared end of the belt is then inserted between the points of the hooks, and pressure applied to the levers; this forces the hooks into the belt in such a way that the hooks are left flush with the belt surface. When this operation has been repeated on the other end of the belt the loops of the hook are interlocked and joined by a rawhide pin. A perfectly smooth joint is thus obtained.

Price, each **£5 0 0**

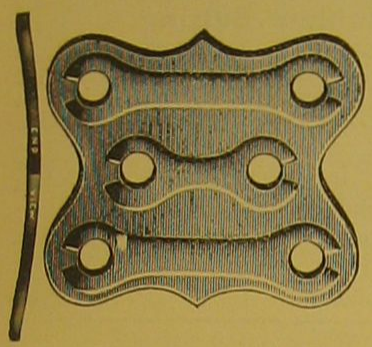
Cast-Steel Hooks and Eyes for Round Belts (British Made)

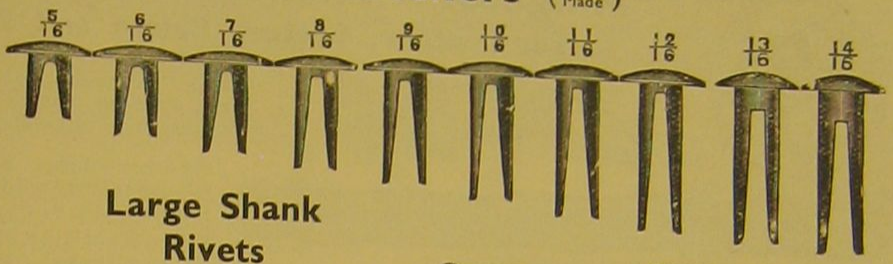
These Hooks and Eyes will be found very superior, both in material and finish.

Sizes	3/32	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	in.
Prices ...	6/–	6/–	6/–	6/–	6/–	6/–	7/–	8/–	12/–	18/–	24/–	32/–	40/–	48/–	56/–	per doz.

BELT FASTENERS

Crescent Belt Fasteners (British Made)





Large Shank Rivets

Select Rivets $\frac{3}{16}$ inch longer than belt thickness.
Illustrations Actual Size.

RIVET HOLDER

Size	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	13/16	14/16	15/16	16/16	
Price, Small Shank Rivets	2/2	2/2	2/4	2/4	2/6	2/6	—	—	—	—	—	—	ins.
,, Large ,, ,,	3/–	3/–	3/6	3/6	4/–	4/–	4/6	4/6	5/–	5/–	—	—	—per gross
,, Crescent Jumbo ,,	—	—	—	—	—	5/6	6/–	6/–	6/6	6/6	7/–	7/–	8/– ,, ,,

Crescent Rivets are of special construction, made from selected material, embodying the greatest strength without increased weight. Crescent Rivets are the only rivets licensed to be used for attaching Crescent Plates.
A Crescent Rivet Holder included in each gross box of Crescent Rivets without charge.

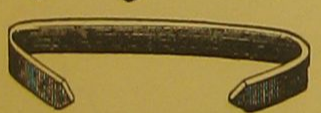
Crescent Plates

HIGH SPEED PLATES, for High Speed Work. Belts, ¾ to 6 ins. wide. Pulleys, 2 ins. diameter or larger.	Numbers,	**20**	**40**	**44**	**60**	**66**	
	For Belts, width	¾ & 1	1 & 2	1½ & 3	2 & 4	1½, 3, 4½ & 6	ins.
	Prices	**12/–**	**24/–**	**24/–**	**36/–**	**36/–**	per gross
SHORT GRIP PLATES, for Light Work. Belts, ¾ to 6 ins. wide. Pulleys, 3 ins. diameter or larger.	Numbers	**25**	**45**	**65**	**85**	**805**	
	For Belts, width	¾ & 1	1¼, 1½ & 2	2 & 4	2½ & 5	3 & 6	ins.
	Prices	**12/–**	**24/–**	**36/–**	**48/–**	**48/–**	per gross
MEDIUM GRIP PLATES, for General Work. Belts, 1½ to 12 ins. wide. Pulleys, 6 ins. diameter or larger.	Numbers	**67**	**607**	**87**	**107**	**127**	**147**
	For Belts, width	1½ & 3	2&4	2½& 5	3&6	3½ & 7	4& 8 ins.
	Prices	**36/–**	**36/–**	**48/–**	**60/–**	**72/–**	**84/–** per gross
SPECIAL GRIP PLATES. Belts, 2 to 12 ins. wide. Pulleys, 9 ins. diameter or larger.	Numbers		**63**	**83**	**103**	**123**	
	For ins. of Belts, width		2	2½	3	4	ins.
	Prices		**48/–**	**60/–**	**72/–**	**84/–**	per gross
LONG GRIP PLATES, for Heavy Work. Belts, 5 to 72 ins. wide. Pulleys, 12 ins. diameter or larger.	Numbers		**109**	**149**	**1409**	**189**	
	For ins. of Belts, width		2½	3	3½	4	ins.
	Prices		**72/–**	**96/–**	**108/–**	**120/–**	per gross
JUMBO PLATES, for extremely Heavy Work. Belts, 3 ins. and wider. Pulleys, 24 ins. diameter or larger.	Numbers			**1611**	**2211**		
	For ins. of Belt, width			3	4		ins.
	Prices			**120/–**	**144/–**		per gross

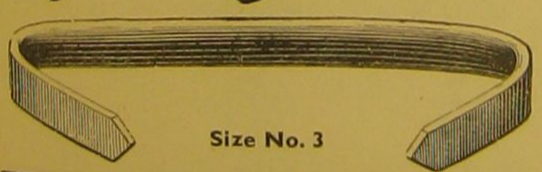
RIVET EXTRACTOR
No. 79
Price, 6/-

American Patent Belt Fasteners (Made in U.S.A.)

Size No. 14



Size No. 8



Size No. 3

For Belts 1 to 1½ Inches

No.	15	14	13	12	
Size	¾	13/16	⅞	1	ins.
Price	8/4	10/–	10/10	11/8	per 1000

For Belts 1¾ to 3½ inches

No.	11	10	9	
Size	1⅛	1¼	1⅜	ins.
Price	12/6	14/7	16/8	per 1000

For Belts 4 to 8 inches

No.	8	7	6	
Size	1½	1¾	2	ins.
Price	20/10	25/–	35/5	per 1000

For Belts 9 inches and larger

No.	5	4	3	
Size	2 3/16	2⅛	2⅝	ins.
Price	45/10	58/4	66/8	per 1000

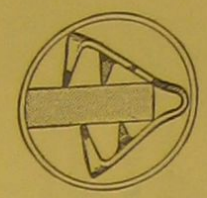
Directions

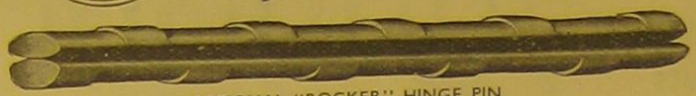
With an ordinary belt punch make a row of holes in each end of the belt, at such a distance from the ends as to allow the two ends to touch when the hooks are in their place. Insert the Fasteners and close down the ends with a hammer. To take up the belt, raise the ends of the hooks, slip them out, cut off the belt and again insert the hooks as before.

BELT FASTENERS

"Alligator" Flexible Steel Belt Lacing (Made in U.S.A.)

For Leather, Cotton, Balata and Rubber Belting





SECTIONAL "ROCKER" HINGE PIN

With "Alligator" Lacing which has a double-toothed grip, a strong, flexible, substantial joint can be made in various kinds of beltings that will withstand hard service.

"Rocker" hinge pins give excellent service under all conditions, while Raw Hide pins give their best results in dry work and light duty.

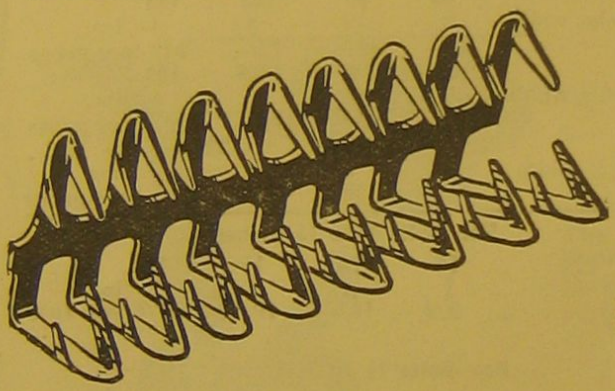
Extra Raw Hide Pins ... ... **2/3 per doz.**
Extra "Rocker" Pins ... ... **2/3** ,,

Price, complete with Gauge and Hinge Pins. Packed in Boxes.

Lacing No.	For Thickness and Kind of Belting	Will Join in Width Ins.	Length of Section Ins.	Price per Box
00	Printers' tapes and tape belts up to $\frac{1}{16}$ inch	72	6	6/-
1	,, ,, ,, ,, ,, from $\frac{1}{16}$ to $\frac{3}{32}$ inch	42	6	4/-
15	Light narrow single leather or fabric from $\frac{1}{8}$ to $\frac{5}{32}$ inch	64	8	6/-
20	Single leather, 3-ply fabric, up to $\frac{3}{16}$ inch	60	12	6/-
25	Single leather and fabric belts from $\frac{3}{16}$ to $\frac{7}{32}$ inch	96	12	11/9
27	Leather or 4-ply fabric belts up to $\frac{9}{32}$ inch	96	12	12/6
35	Double leather, 5-ply rubber, cotton, or balata belts from $\frac{9}{32}$ to $\frac{5}{16}$ inch ...	48	12	8/-
45	Heavy double leather and 6-ply belts up to $\frac{3}{8}$ inch	48	12	10/9
55	Rubber, cotton, or balata belts up to $\frac{7}{16}$ inch	48	12	13/-
65	7 and 8-ply rubber, cotton, or balata belts up to $\frac{1}{2}$ inch	48	12	14/6
75	For belts $\frac{1}{2}$ to $\frac{5}{8}$ inch thick	48	12	23/-

Sizes Nos. 75, 65, and 55 are packed only with sectional steel "Rocker" hinge pins. Sizes Nos. 45, 35, 27, 25, and 20 are packed regularly with "Rocker" hinge pins, but can be had with Raw Hide pins only if so specified. Sizes Nos. 15 and 00 and No. 1 are packed only with Raw Hide hinge pins.

With the small sizes, Nos. 00 and 1, a special holder frame is supplied, which assists in their application.



"Stratford" Belt Lacing (British Made)

A Hammer only is required for fixing

This type of belt lacing by means of the double toothed grip makes a very substantial, strong and flexible joint. It is equally efficient on all kinds of belting.

Rocker Hinge Pins give good service under all conditions. Rawhide Pins are recommended only for dry and light work.

SECTION OF ROCKER HINGE PIN

Sizes and Prices

No.	**15**	**20**	**25**	**27**
Other Equivalent Nos.	**1**	**2**	**3**	**4**
For Belts, ins. thick up to	$\frac{5}{32}$	$\frac{5}{32}$ to $\frac{3}{16}$	$\frac{3}{16}$ to $\frac{1}{4}$	$\frac{1}{4}$ to $\frac{9}{32}$
Box contains, pieces	16—8-in.	10—12-in.	16—12-in.	16—12-in.
Price per box	**5/3**	**4/10**	**10/3**	**11/-**
No.	**35**	**45**	**55**	**65**
Other Equivalent Nos.	**5**	**6**	**7**	**8**
For Belts, ins. thick	$\frac{9}{32}$ to $\frac{5}{16}$	$\frac{5}{16}$ to $\frac{3}{8}$	$\frac{3}{8}$ to $\frac{7}{16}$	$\frac{7}{16}$ to $\frac{1}{2}$
Box contains, pieces	8—12-in.	8—12-in.	8—12-in.	8—12-in.
Price per box	**6/10**	**9/3**	**11/-**	**12/-**

Prices are for boxes complete with gauge and metal hinge pins.

Small Packet Assortments

Packets containing 2 six-inch lengths of lacing complete with hinge and gauge pin can be supplied in following sizes:—

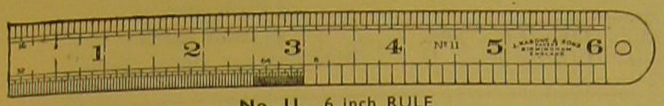
Packet No. ...	**1**	**2**	**3**	**4**	**5**
For Belts, ins. ...	up to $\frac{5}{32}$	up to $\frac{3}{16}$	up to $\frac{1}{4}$	up to $\frac{9}{32}$	up to $\frac{5}{16}$
Price per packet	**1/6**	**1/8**	**1/9**	**1/10**	**2/4**

Rocker Hinge Pins Price, 2/- per doz.

Rawhide Pins drives and dry work. Recommended only for light **Price ... 2/3 per doz.**

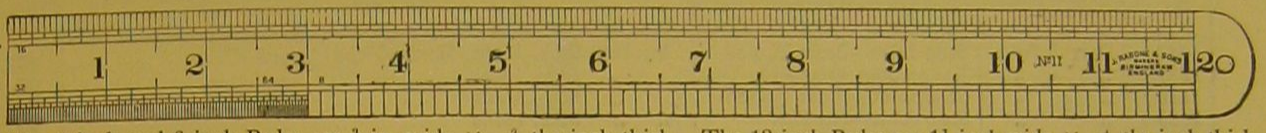
STEEL RULES

Rabone Machine-Divided Steel Rules (British Made)



No. 11. 6 inch RULE

Made of **best quality steel, hardened and tempered.** They are reliable straight edges and are **accurately engine divided.**

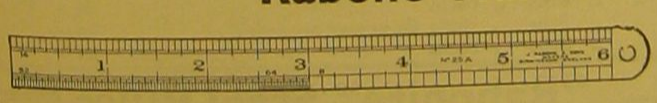


No. 11. 12 inch RULE

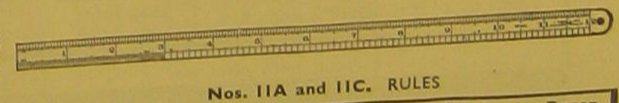
The 4 inch and 6 inch Rules are $\frac{3}{4}$ in. wide × $\frac{3}{100}$ths inch thick. The 12 inch Rules are $1\frac{1}{8}$ inch wide × $\frac{4}{100}$ths inch thick.

No.	Details of Marking	Price per Dozen			Price Each					
		¾" × $\frac{3}{100}$ths Thick		1⅛ × $\frac{4}{100}$ths	1⅛" wide × $\frac{6}{100}$ths				1⅛" wide × $\frac{7}{100}$ths	
	Length. Inches	4	6	12	18	24	30	36	36	48
	LONDON marked One Edge, One Side									
9	Ins. into 8ths, 16ths, 32nds, 64ths	7/-	8/6	16/6	—	4/6	—	9/-	—	—
	LONDON marked Two Edges, One Side									
10	Ins. into 8ths, 16ths	7/6	9/-	17/-	3/-	5/6	7/6	—	18/-	22/6
11	,, ,, 8ths, 16ths, 32nds, 64ths	9/6	12/-	20/-	4/-	6/-	9/-	—	21/-	25/6
13	,, ,, 10ths, 20ths, 50ths; 16ths, 32nds, 64ths	9/6	12/-	20/-	—	—	—	—	—	—
14	,, ,, 10ths, 20ths, 40ths, 50ths, 100ths; 16ths, 32nds, 64ths	13/6	15/-	24/-	—	7/6	—	—	22/6	—
50	,, ,, 50ths Top Edge; 32nds on Bottom Edge	—	15/-	27/-	—	—	—	—	—	—
65	,, ,, 32nds, 64ths, one Edge of each division; 64ths figures every eight divisions. Decimal equivalent on Back	—	—	32/-	—	—	—	—	—	—
66	,, ,, 8ths, 16ths, 32nds, 64ths; Decimal equivalent on Back	—	—	24/-	—	—	—	—	—	—
	LONDON marked on Four Edges, Both Sides									
25	Ins. into 8ths, 16ths, 32nds, 64ths	15/-	18/-	26/-	—	—	—	—	—	—
26	,, ,, 16ths,32nds, 64ths; 12ths, 24ths, 48ths; 10ths, 20ths, 50ths	—	18/-	29/-	—	—	—	—	—	—
27	,, ,, 16ths, 32nds, 64ths; 12ths, 24ths, 48ths, 96ths; 10ths, 20ths, 50ths, 100ths	—	—	33/-	—	—	—	—	—	—
28	,, ,, 8ths, 16ths, 32nds, 64ths, one edge each division whole length rule	15/-	18/-	29/-	—	—	—	—	—	—
36	,, ,, 8ths, 16ths, 32nds, 64ths one edge each division, 64ths every 8th division	—	24/-	36/-	—	—	—	—	—	—
62	,, ,, 10ths, 20ths, 40ths, 50ths Top edge; 16ths, 32nds, 64ths Bottom edge; same divisions on Back but reversed	—	22/6	36/-	—	—	—	—	—	—
	LONDON and METRE marked on Two Edges, One Side									
32	Ins. into 16ths and millimetres	10/-	13/-	22/-	4/6	6/-	—	13/6	—	—
34	,, ,, 16ths, 32nds, 64ths; m/m. and ½ m/m.	12/-	15/-	25/-	5/6	7/-	—	15/-	—	—
67	,, ,, 16ths, 32nds, 64ths; m/m., ½ m/m. (Dec. equivs. on back)	—	—	29/-	—	—	—	—	—	—
1730	,, ,, 16ths, 32nds, 64ths; m/m. and ½ m/m.	—	—	12/-	—	3/-	—	—	—	—
	LONDON and METRE, marked Four Edges, Both Sides									
39	Ins. into 16ths, 32nds, 64ths; 10ths, 20ths, 40ths, 50ths, 100ths, m/m.	18/-	21/-	36/-	—	12/6	—	—	—	—
41	,, ,, 16ths,32nds,64ths; 10ths,20ths,50ths; 12ths,24ths,48ths; ½m/m.	—	21/-	33/-	—	11/6	—	—	—	—
42	,, ,, 16ths, 32nds, 64ths; 10ths, 20ths, 50ths, 100ths; 12ths, 24ths, 48ths, 96ths; ½ m/m.	18/-	21/-	36/-	—	—	—	—	—	—
64	,, ,, 16ths, 32nds, 64ths, 10ths, 20ths, 50ths, 100ths One Side; m/m. top and ½ m/m. Bottom edge reverse side	18/-	21/-	36/-	—	—	—	—	—	—
	Metre only Marked Two Edges, One Side		15 cm.	30 cm.	½ Met.			1 Met.		
45	Millimetres only on Two edges	—	13/-	22/-	4/6	—	—	13/6	—	—

Rabone Narrow Steel Rules (British Made)



No. 25A. 6 inch RULE (TOP SIDE)



Nos. 11A and 11C. RULES

Cases for Steel Rules with plated metal edges.

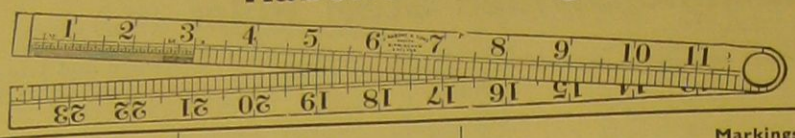
For 4 inch Rules, 4/6 per doz.

For 6 inch Rules, 6/- per doz.

No.	Markings	Size of Rule	Price per Dozen Length. 4	6	Ins. 12
11A	Two Edges, One Side Ins. into 8ths, 16ths, 32nds, 64ths	¾ inch wide by $\frac{3}{100}$ inch thick	9/6	11/-	20/-
13A	Two Edges, One Side ,, ,, 10ths, 20ths, 50ths; 16ths, 32nds, 64ths		9/6	11/-	20/-
25A	Four Edges, Both Sides ,, ,, 8ths, 16ths, 32nds, 64ths		13/6	16/-	24/-
26A	Four Edges, Both Sides ,, ,, 16ths, 32nds, 64ths; 12ths, 24ths, 48ths; 10ths, 20ths, 50ths		—	16/-	27/-
28A	Four Edges, Both Sides ,, ,, 8ths, 16ths, 32nds, one Edge each Division Whole Length		13/6	16/-	27/-
34A	Two Edges, One Side ,, ,, 16ths, 32nds, 64ths; m/m. and ½ m/m.		11/-	13/6	24/-
42A	Four Edges, Both Sides ,, ,, 16ths, 32nds, 64ths; 10ths, 20ths, 50ths, 100ths, 12ths, 24ths, 48ths, 96ths, ½ m/m.		16/-	19/-	32/-
64A	Four Edges, Both Sides ,, ,, 16ths, 32nds, 64ths; 10ths, 20ths, 50ths, 100ths, m/m and ½ m/m.		16/-	19/-	32/-
11C	Two Edges, One Side Ins. into 8ths, 16ths, 32nds, 64ths	⅛ inch wide by .012" thick	9/6	11/-	20/-
13C	,, ,, 10ths, 20ths, 50ths; 16ths, 32nds, 64ths		9/6	11/-	20/-
50C	,, ,, 64ths Top Edge; 32nds Bottom Edge		12/-	13/6	24/-
53C	,, ,, 100ths Top Edge; 64ths Bottom Edge		—	21/6	32/-
34C	,, ,, 16ths, 32nds, 64ths,; m/m. and ½ m/m.		11/-	13/6	24/-
54C	,, ,, 10ths, 20ths, 50ths; m/m. and ½ m/m.		—	13/6	—

STEEL AND BRASS RULES

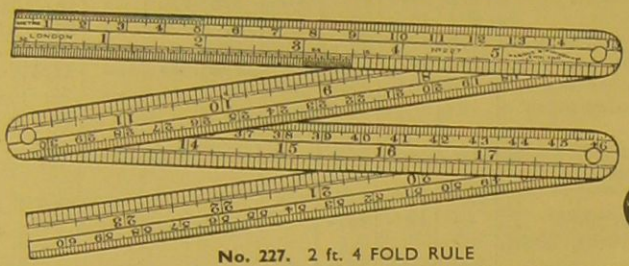
Rabone Folding Steel Rules (British Made)



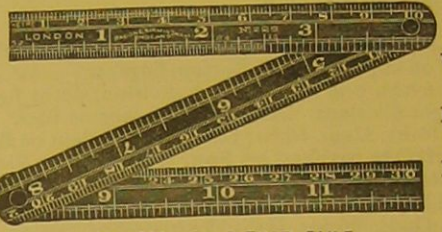
¾ inch wide
1/32 inch thick
Marked on Both Sides.

No.	Length & No. of Folds	Style	Markings	Price per Dozen
1667	2 Feet 2 Fold	Stop Joint—Brass Tipped	Ins. into 8ths, 16ths, 32nds, 64ths	17/-
1637	,, ,,	Spring Stop Joint—No Tips	,, ,, 8ths, 16ths	25/-
1638	,, ,,	Stop Joint—Brass Tipped	,, ,, 8ths, 16ths	30/6
1639	,, ,,	Stop Joint—No Tips	,, ,, 8ths, 16ths	27/6
1641	,, ,,	Stop Joint—G.S. Tips	,, ,, 8ths, 16ths, 32nds, 64ths	33/-
1658	,, ,,	Stop Joint—No Tips	,, ,, 8ths, 16ths, 32nds, 64ths	30/-
1642	,, ,,	Stop Joint—G.S. Tips	,, ,, 16ths, 10ths, 20ths	33/-
1644	,, ,,	Stop Joint—G.S. Tips	,, ,, 8ths, 16ths; millimetres	35/-
1654	,, ,,	Stop Joint—G.S. Tips	,, ,, 16ths, 32nds, 64ths; millimetres	35/-
1291	,, ,,	Stop Joint—Brass Tips	,, ,, 8ths, 16ths. **Etched with Bright Raised Figures**	31/6
1293	3 Feet 3 Fold	2 Stop Joints—Brass Tips	,, ,, 8ths, 16ths. **Etched with Bright Raised Figures**	47/-

Rabone Thin Flexible Folding Steel Rules (British Made)



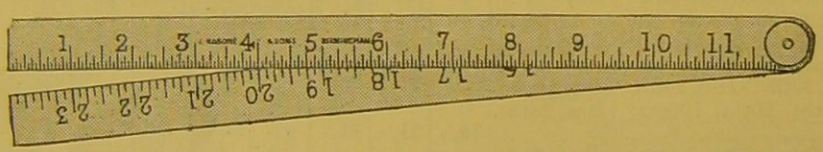
No. 227. 2 ft. 4 FOLD RULE



No. 226. 1ft. 3 FOLD RULE

With Spring Stop Joints.
Rule ½ inch wide.
2/100 inch thick.
Marked on one Side.

No.	Length and Folds	Markings	Price per Dozen
223	1 Foot 3 Fold	Ins. into 16ths, 32nds, 64ths	18/-
226	,, ,,	,, ,, 16ths, 32nds, 64ths, m/m.	21/-
228	,, ,,	,, ,, 10ths, 20ths, m/m.	21/-
224	2 Feet 4 Fold	,, ,, 16ths, 32nds, 64ths	36/-
227	,, ,,	,, ,, 16ths, 32nds, 64ths, m/m.	40/-
235	1 Metre 10 Fold	,, ,, 16ths, 32nds, 64ths, m/m.	62/-
1715	,, ,,	,, ,, 16ths, 32nds, 64ths, m/m.	24/-



Rabone Folding Brass Rules (British Made)

Made of Hard brass. Flexible and machine marked in 8ths and 16ths.

No.	Length and Folds	Width Ins.	Style	Markings	Price per Dozen
1493	2 Feet 2 Fold	⅝	Round Joint	Ins. into 8ths and 16ths	14/-
1243	,, ,,	¾	Round Joint	,, ,, 8ths ,, 16ths	16/-
1494	,, ,,	¾	Stop Joint	,, ,, 8ths ,, 16ths	18/6
1496	,, 4 ,,	¾	Round Joint	,, ,, 8ths ,, 16ths	36/-
1495	,, 2 ,,	⅞	Stop Joint	,, ,, 8ths ,, 16ths **Degrees on Joint** ...	24/-
1499	,, 2 ,,	¾	Stop Joint	,, ,, 8ths ,, 16ths	21/-

"Rabonite" Steel Rules (British Made)

Made of hardened and tempered carbon steel. Treated by special ebonizing process ensuring permanent black and white marking.

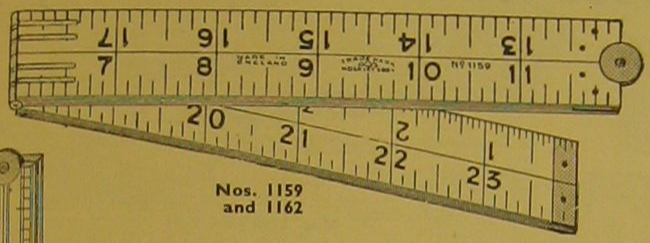
This treatment gives greater resistance to rust, but does not make the rule rustless.

No.	Description	Price per Dozen 6 inch	Price per Dozen 12 inch
	LONDON Marked. Two Edges, One Side		
B11	Ins. into 8ths, 16ths, 32nds, 64ths	14/6	24/-
B11A	,, ,, 8ths, 16ths, 32nds, 64ths (Narrow Thick Rule)	13/6	—
B25	,, ,, 8ths, 16ths, 32nds, 64ths	20/6	30/-
	LONDON and METRE. Two Edges, One Side		
B32	,, ,, 16ths and millimetres	—	26/-
B34	,, ,, 16ths, 32nds, 64ths, m/m. and ½ m/m.	17/6	29/-
B34A	,, ,, 16ths, 32nds, 64ths, m/m. ,, ½ m/m. (Narrow Thick Rule) ...	16/-	—

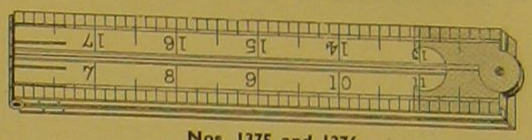
Leading Patterns of Rabone Rules can be had in Rustless Steel. Other Patterns can be supplied. Prices on Application.

BOXWOOD RULES

Rabone Folding Boxwood Rules (British Made)

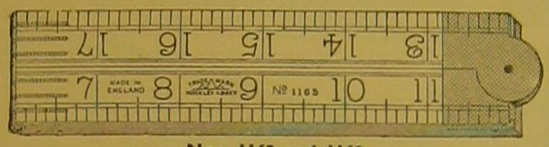


Nos. 1159 and 1162

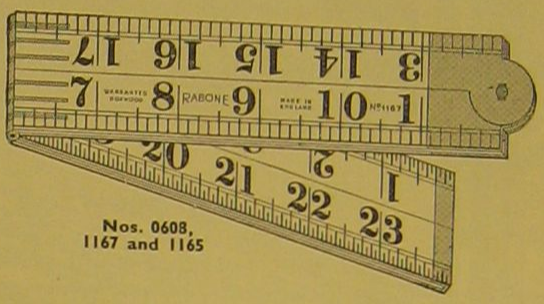


Nos. 1375 and 1376

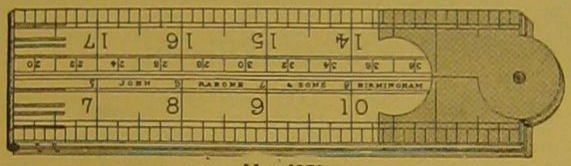
No. 1150/2



Nos. 1163 and 1169

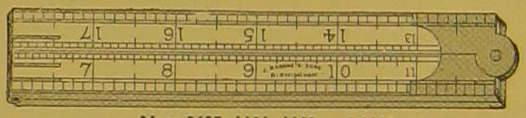


Nos. 0608, 1167 and 1165

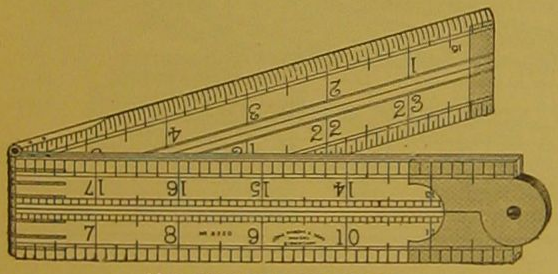


No. 1379

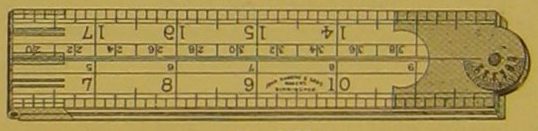
No. 1173



Nos. 0605, 1101, 1112 and 1113



Nos. 2547, 2548, 2550, 2551



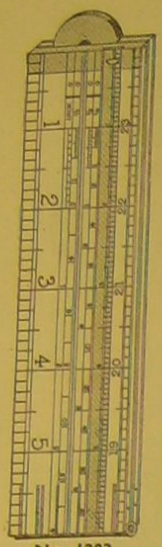
No. 1180

Four-Fold Boxwood Rules

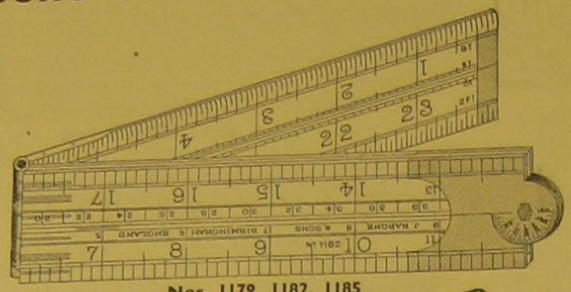
No.	Price per Dozen 1 ft.	2 ft.	3 ft.	Style	Width ins	Marking
1150	6/–	—	—	Round Joint	¼	Ins. into 8ths
1151	12/–	—	—	Square ,, ...	¼	,, ,, 8ths and 16ths
1152	15/–	—	—	Arch ,, ...	¼	,, ,, 8ths ,, 16ths
1159	—	7/6	—	Round ,, ...	¼	,, ,, 8ths ,, 16ths. **Extra prominent marking**
1162	—	9/9	—	,, ,, ...	1	,, ,, 8ths ,, 16ths. **Extra prominent marking**
1166	—	12/–	15/6	,, ,, ...	1	,, ,, 8ths ,, 16ths
1163	—	17/–	22/–	Square ,, ...	1½	,, ,, 8ths ,, 16ths
1169	—	15/–	19/–	,, ,, ...	1	,, ,, 8ths ,, 16ths
1375	—	16/6	21/–	Arch ,, ...	1	,, ,, 8ths ,, 16ths
1376	—	17/6	22/6	,, ,, ...	1	,, ,, 8ths, 16th, 10ths and 12ths
1377	—	20/–	24/–	,, ,, ...	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths
1378	—	22/6	27/–	,, ,, ...	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths
1379	—	26/–	31/–	,, ,, ...	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths and Scales
1380	—	23/–	28/–	,, ,, ...	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths
1173	—	16/6	21/–	,, ,, "Blindmans" Rule ...	1	,, ,, 8ths and 16ths. **Extra Heavy Figures**
0608	—	21/–	26/–	Square ,, "Blindmans" Rule ...	1¼	,, ,, 8ths ,, 16ths. **Extra Heavy Figures**
1167	—	23/–	28/–	,, ,, "Blindmans" Rule ...	1½	,, ,, 8ths ,, 16ths. **Extra Heavy Figures**
1165	—	33/6	38/6	,, ,, "Blindmans" Rule ...	1½	,, ,, 8ths ,, 16ths. **Extra Heavy Figures and full Circle of Degrees**
1170	—	27/–	32/–	Arch ,, ...	1½	,, ,, 8ths ,, 16ths
0605	—	30/–	37/6	Square ,, Brass Bound Outer Edges	1	,, ,, 8ths, 16ths, 10ths and 12ths
1101	—	34/–	42/–	Arch ,,	1	,, ,, 8ths, 16ths, 10ths ,, 12ths
1112	—	38/–	51/–	,, ,,	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths. **With Scales**
1113	—	43/–	64/–	,, ,,	1½	,, ,, 8ths, 16ths, 10ths ,, 12ths
1102	—	47/–	61/6	Arch ,, Outside and Inside Edges Brass Bound.	1	,, ,, 8ths, 16ths, 10ths ,, 12ths
2550	—	22/–	26/6	,, ,, Bevelled on Outside of first 6-in. fold	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths
2551	—	24/6	28/6	,, ,,	1½	,, ,, 8ths, 16ths, 10ths ,, 12ths
2547	—	22/–	26/6	,, ,, Bevelled on Inside of first 6-in. fold	1¼	,, ,, 8ths, 16ths, 10ths ,, 12ths
2548	—	24/6	28/6	,, ,,	1½	,, ,, 8ths, 16ths, 10ths ,, 12ths
1180	—	36/–	42/–	,, ,, Strong Edge Plates and Joints	1½	,, ,, 8ths, 16ths, 10ths ,, 12ths. **Scales and full Circle of Degrees**

Rabone Rules, Continued on Next page

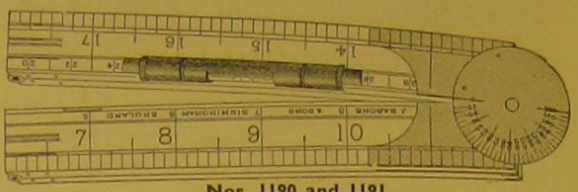
Rabone Four-Fold Boxwood Rules (British Made) (continued)



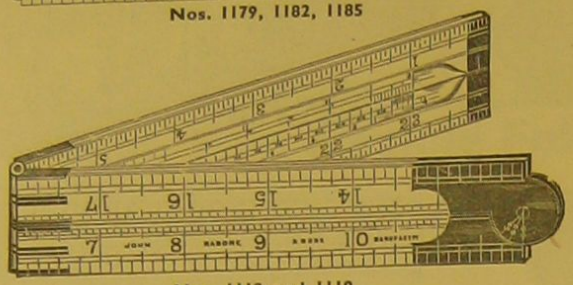
No. 1203



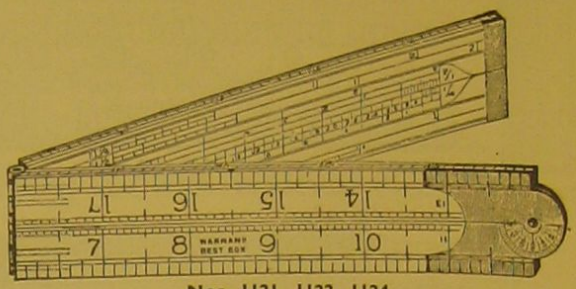
Nos. 1179, 1182, 1185



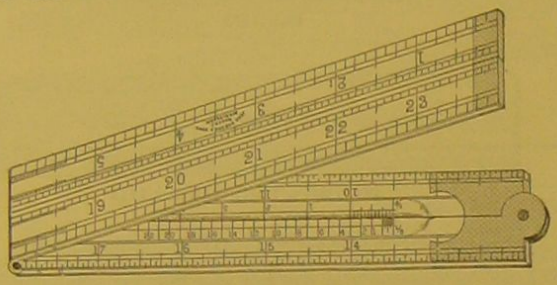
Nos. 1190 and 1191



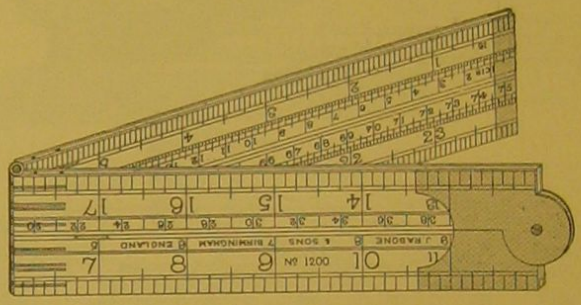
Nos. 1118 and 1119



Nos. 1121, 1122, 1124



No. 1106

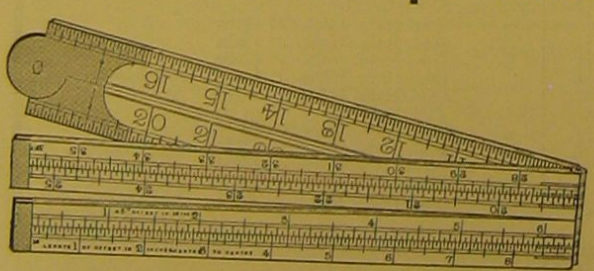


No. 1200

Four-Fold Boxwood Rules

No.	Price per Doz. 2 ft.	Price per Doz. 3 ft.	Style	Width Ins.	Marking
1106	35/-	—	Arch Joint—Bevelled Edges	1	Ins. into 8ths, 16ths, 10ths & 12ths: 4 Scales
1190	68/-	80/-	,, ,, —Polished, Spirit Level ...	1½	,, ,, 8ths & 16ths and Scales } and full circle of
1191	93/-	—	,, ,, —Polished, Spirit Level ...	1½	,, ,, 8ths and 16ths & Scales } Degrees
1179	26/-	32/-	,, ,, —Bevelled Edge 1st leg ...	1¼	,, ,, 8ths, 16ths, 10ths & 12ths: 2 Scales } Degrees
1182	29/-	35/-	,, ,, —Bevelled Edge 1st leg ...	1¼	,, ,, 8ths, 16ths, 10ths & 12ths: 2 Scales } on
1185	33/-	39/-	,, ,, —Bevelled Edge 1st leg ...	1¼	,, ,, 8ths, 16ths, 10ths & 12ths: 2 Scales } Joint
1118	43/-	60/-	,, ,, —Bevelled, Polished & Edge-plated	1	,, ,, 8ths, 16ths, 10ths & 12ths: 8 Scales
1119	55/-	72/-	,, ,, —Bevelled, Polished & Edge-plated	1⅛	,, ,, 8ths, 16ths, 10ths & 12ths: 8 Scales: Degrees on Joint
1121	63/-	—	,, ,, —Nickel Silver & Bevelled...	1	,, ,, 8ths, 16ths, 10ths & 12ths: 8 Scales
1122	90/-	114/-	,, ,, —Nickel Silver & Bevelled	1⅛	,, ,, 8ths, 16ths, 10ths & 12ths: 16 Scales: Degrees on Joint
1124	96/-	120/-	,, ,, —Nickel Silver, Edge-plated & Bevelled	1⅛	,, ,, 8ths, 16ths, 10ths & 12ths: 8 Scales: Degrees on Joints
1203	39/-	—	,, ,, —With Extending Slide ...	1¾	,, ,, 8ths & 16ths & Scales
1200	40/-	50/-	,, ,, —Without Brass Slide ...	1¾	,, ,, 8ths & 16ths: Circumference Scale Inside

Rabone "Pipe Fitters" 45° Rule, No. 045



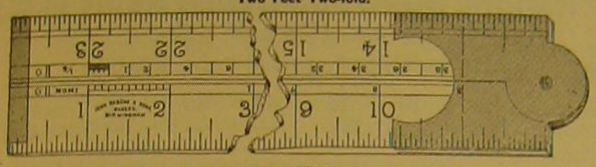
This rule is **designed to give at a glance the measurement between centres of two 45 degrees bends or elbows** irrespective of the kind or size of pipe being used. This enables pipes, etc., to be cut off with precision instead of arriving at a result by the old trial and error methods.

Special scales are marked on the outside of the rule and are so placed that they read one against the other for comparison purposes. **The inside is marked in inches and 16ths** for taking ordinary measurements.

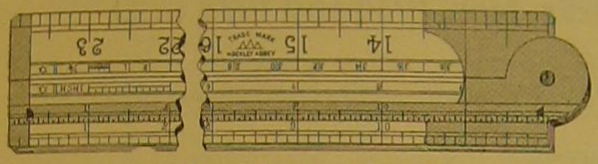
No. 045. Arch Joint Four-fold Boxwood Rule, 3 ft. long, 1¼ ins. wide ... ... 6/- each

BOXWOOD RULES AND GAUGES

Two Feet Two-fold.



No. 1224



No. 1390. 2FT. RULE WITH SLIDE

Rabone Two-Fold Boxwood Rules

(British Made)

No. 1224. Arch Joint, 1⅝ in. wide marked inches into 8ths, 16ths, 10ths and 12ths. Two Scales. Length, 2 feet.

Price ... ... **15/6 per doz.**

No. 1390. Arch Joint. 1⅝ ins. wide, marked inches into 8ths, 16ths, 10ths, 12ths, and 2 scales. Brass slide marked inches into 16ths. Length, 2 feet.

Price ... ... **24/– per doz.**

Rabone Four Feet Four-Fold Boxwood Rules (British Made)

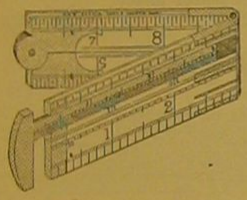
Nos. 1185 and 1186

Four Fold Rule and Arch Joint, 1½ ins. wide. **Brass Bitted Pinholes.** Length 4 feet.

No. 1185. Marked 4 scales and inches into 8ths and 16ths. ... ... **Price 60/– per doz.**

No. 1186. Marked 4 scales and inches into 16ths outside. Inside marked millimetres ... ... **Price 70/– ,,**

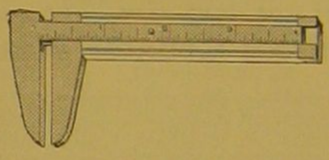
Rabone Boxwood Rules with Caliper Gauges (British Made)



No. 1211. Arch Joints; Outside Plate Joints marked inches into 8ths and 16ths. **Brass slide** into 32nds.

Width, 1 inch. Length, 1 foot. 4 fold.

Price ... **45/– per doz.**

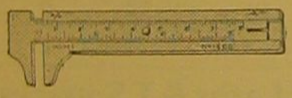


No. 1465. With Extra Large Jaws.

Jaw, 1½ ins. deep: Length 4 ins.

Price ... **31/– per doz.**

Brass Caliper Gauges



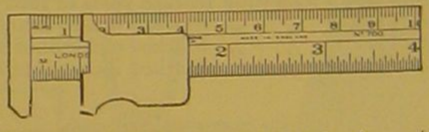
Marked Inches into 32nds and millimetres.

No. 1470. Measurements to 2 ins. **Price 17/6 per doz.**

No. 1466. ,, ,, 3 ,, ,, **20/– ,,**

No. 1472. ,, ,, 3½ ,, ,, **24/– ,,**

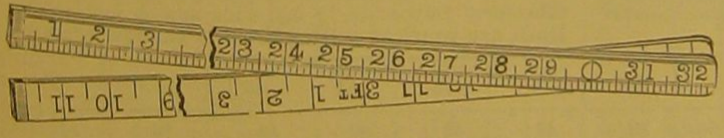
Steel Caliper Gauges



All Steel Engine Divided.

No. 700. Marked Ins. into 32nds also m/m.
Price ... ... **5/– each**

No. 701. Marked Ins. into 64ths also ½ m/m. Length, 4ins.
Price ... ... **6/– each**



No. 1610

No. 1611

Rabone Two-Fold Boxwood Folding Laths (British Made)

For Builders, Architects and Surveyors

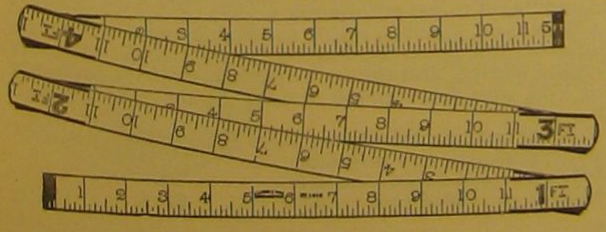
No. 1610. With Spring Stop Joint. Marked inches into 8ths on both sides. **Feet figures in red.**

Price, 5 feet, 5/– each; 6 feet 6/– each

No. 1611. Black with White Figures. Marked inches into 8ths both sides. **Feet figures in red.**

Price, 5 feet, 5/6 each; 6 feet, 6/6 each

Rabone Multi-folding Boxwood Laths (British Made)



No. 1612. 5 ft. 5 Fold.

No. 1613. 6 ft. 6 Fold.

Suitable for Architects, Builders, Surveyors, etc. Convenient for the pocket.

Made of boxwood ⅞ inch wide × 3/16 inch thick. Spring Stop Joints. Marked feet and inches in 8ths, both sides.

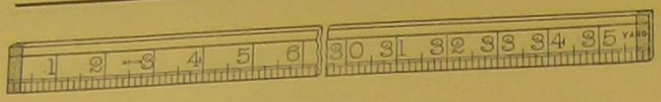
No. 1612. 5 ft. 5 fold Rule ... ... **7/– each**

No. 1613. 6 ft. 6 fold Rule ... ... **8/6 ,,**

RULES

Rabone Boxwood Bench Rules (British Made)

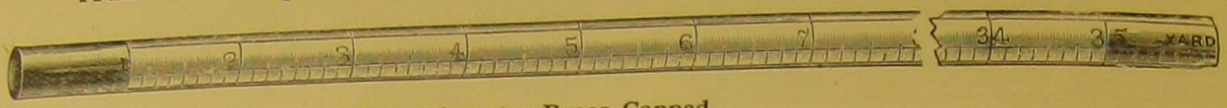
Nos. 1138 and 1139



Brass Tipped, marked inches into 8ths.

	24	36	48	60	72	ins.
Length	20/–	25/–	—	—	—	per doz.
No. 1138. 1 inch wide: $\frac{3}{16}$ in. thick: marked both sides inches into 8ths. ...						
No. 1139. 1½ inch wide; ¼ in. thick: Marked 3 lines of ins. in 8ths. figured from both ends	36/–	45/–	63/–	90/–	126/–	,,

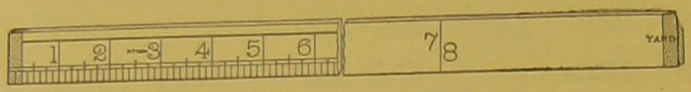
Rabone Drapers' Round Yard Sticks, Nos. 1034 and 1035 (British Made)



½ inch Diameter Brass Capped.

No. 1034. Beechwood, marked inches in 8ths and parts of yard; Length 1 yard — Price 20/– per doz.
No. 1035. Best Lancewood, marked inches in 8ths and parts of yard: Length 1 yard — ,, 26/– ,,

Rabone Drapers' and Tailors' Flat Yard Measures, Nos. 1504 (British Made)



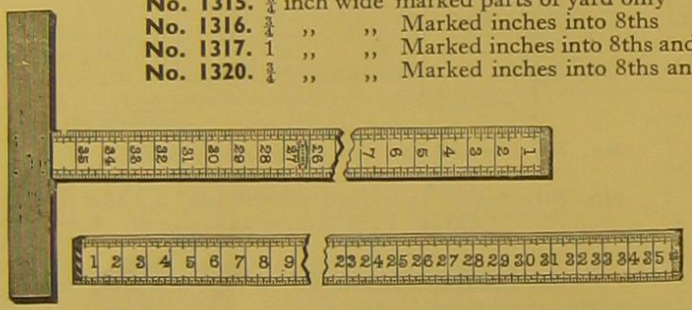
Boxwood Brass Tipped.

No. 1504. Boxwood, 1 inch wide, $\frac{3}{16}$ in. thick: marked inches into 8ths one side and parts of yard other side.
Length 1 yard ... ... — Price 25/– per doz.

Rabone Brass Counter Measures, Nos. 1315—1320 (British Made)

1 Yard long, with holes for screwing down.

No. 1315. ¾ inch wide marked parts of yard only	25/–	per doz.
No. 1316. ¾ ,, ,, Marked inches into 8ths	28/–	,,
No. 1317. 1 ,, ,, Marked inches into 8ths and parts of yard (Government stamped) ...	42/–	,,
No. 1320. ¾ ,, ,, Marked inches into 8ths and parts of yard ,, ...	36/–	,,

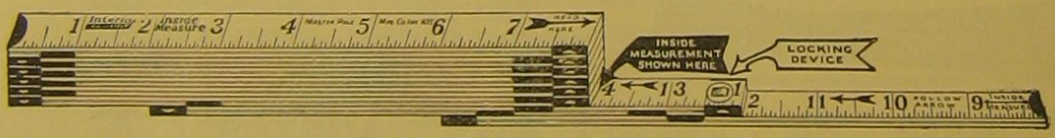


Rabone Glaziers' Laths & T Squares

(British Made)

These T squares are securely mortised in the stock and the boxwood from which they are made is efficiently and carefully seasoned.
Glaziers' T Squares are 1¾ ins. wide and ¼ inch thick.
Glaziers' Laths are 1¾ ins. wide and $\frac{3}{16}$ inch thick.
Both are marked with 4 lines of Inches into 8ths.

No.	Description	Length—Inches 24	30	36	42	48	60	72
1136	Glaziers' Lath ... ... per doz.	30/-	39/-	48/-	60/-	66/-	96/-	132/-
1137	Glaziers' T Square ... ... ,,	54/-	62/-	72/-	80/-	92/-	132/-	—
1147	Glaziers' T Square, **Brass Bound Stock** ,,	72/-	80/-	90/-	97/-	110/-	150/-	—
1031	Glaziers' Lath **with Stop Block End** ... ,,	52/-	59/-	60/-	78/-	88/-	118/-	155/-



The "Interlox" Master Slide Rule—

Two Rules in One. (Made In U.S.A.)

The "Interlox" is a combination of an ordinary rule and a Direct Reading Inside-Caliper Rule. It is simple to operate, and direct reading. **Whilst being handy and accurate as an ordinary rule, it has been specially designed to give instant inside measurements** and for use in awkward and "hard-to-get-at" positions.
The "Interlox" Master Slide Rule measures 8 inches in length when closed, ½ inch in width, and its thickness is determined by the number of slides, each of which is about $\frac{3}{16}$ inch thick. Rules are made in varying lengths ranging from 3 feet to 8 feet maximum. **The slides are held together by an automatic locking device, and the rule opens and closes instantly.**
One side of the scale gives straightforward readings and the other side, with the exception of the top slide, reads backwards (from right to left), recording the inside measurements instantly.
Made of boxwood and brass, rust proof, interlocking, and providing accurate adjustment, these rules will be found indispensable by engineeers, carpenters, plumbers, glaziers, architects, contractors, and inspectors, etc.

Size	3 ft.	4 ft.	5 ft.	6 ft.	8 ft.
Price, per dozen	**40/3**	**54/6**	**67/9**	**81/9**	**112/3**

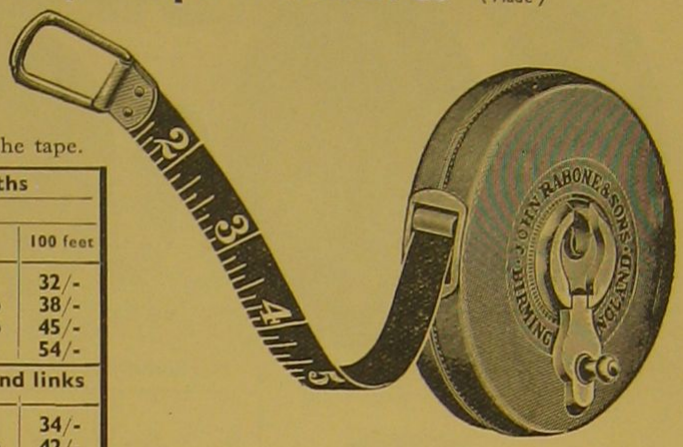
TAPE MEASURES

Rabone Steel Wind-up Tape Measures (British Made)

Leather Cases. Patent Flush Handles

Steel Tapes have **bright figures on a black background.** Very legible.

Foot figure is repeated every 3 ins. throughout the tape.



No.	Width of Tape Ins.	Price Each 25	33	50	66	75	100 feet
Marked one Side only. Feet into inches and 8ths							
4151	3/8	12/-	13/6	19/-	22/-	25/-	32/-
4181	1/2	14/-	15/6	21/6	27/-	29/6	38/-
4211	5/8	15/-	18/-	26/-	32/6	35/6	45/-
4241	3/4	17/6	21/6	29/6	37/-	42/-	54/-
Marked one Side only. Feet into inches and 8ths and links							
415	3/8	12/6	14/6	20/-	24/-	27/-	34/-
418	1/2	14/6	17/-	23/6	30/6	32/6	42/-
421	5/8	16/-	20/-	28/-	34/-	37/6	48/-
424	3/4	19/6	23/-	32/-	39/-	44/-	56/-

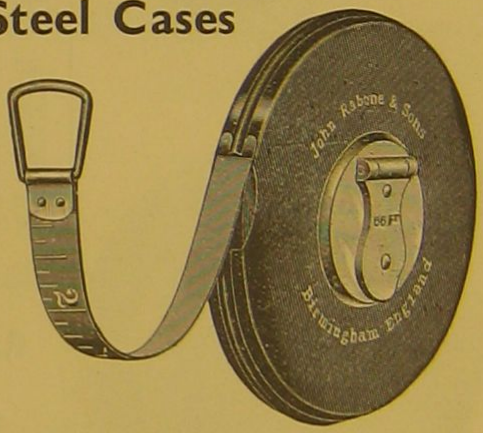
Marked Both Sides :—London and Metre or any Two Measures

No.	Width of Tape Ins.	Price Each 25	33	50	66	75	—	100 ft. 30 met.
Marked **LONDON** and **METRE**, or any **Two Measures** (Feet into inches and 8ths and millimetres)								
415	3/8	14/6	18/-	24/6	30/-	34/6	37/-	43/-
418	1/2	18/6	21/6	29/6	38/-	41/-	46/-	53/-
421	5/8	—	24/6	34/-	43/-	46/-	52/-	62/-
424	3/4	—	26/6	37/-	47/6	53/-	58/-	69/-
Marked **LONDON** and **METRE** (Feet into inches and 8ths and centimetres. 1st metre in millimetres)								
4156	3/8	13/6	16/6	23/-	28/-	31/6	33/6	39/-
4186	1/2	17/-	19/-	27/-	34/6	37/-	41/-	48/-
4216	5/8	—	22/6	31/6	38/6	43/-	48/-	57/-
4246	3/4	—	25/6	35/6	46/-	51/-	55/-	65/-

Rabone Steel Tape Measures in Steel Cases

Intended particularly for mechanics use where oil and dirt might spoil a leather cased tape.

The case is black, steel, and fitted with **brass flush handle,** and the whole is very compact and serviceable.



No.	Marking	Width of Tape Ins.	Price Each 25	33	50	66	—	100 ft. 30 met.
4351	One Side only. **Feet** into inches and 8ths	3/8	8/9	9/6	13/-	16/6	18/6	23/-
4381		1/2	12/6	14/-	20/-	24/6	27/-	36/-
435	One Side only. **Feet and Links** (feet into inches and 8ths)	3/8	9/6	11/-	14/6	18/-	20/-	25/6
438		1/2	13/6	16/-	21/6	28/-	30/-	39/-
445	**London & Metre or any Two Measures** (feet into inches and 8ths and millimetres	3/8	12/6	14/6	19/6	25/-	30/-	36/-
448		1/2	16/6	19/6	27/-	34/-	39/-	47/6
4456	**London & Metre** (feet into inches and 8ths. Centimetres 1st metre in m/m.	3/8	11/6	13/6	17/6	21/6	27/-	32/6
4486		1/2	15/-	17/-	24/-	30/-	35/6	42/6

Rabone Steel Tape Measures in Bakelite Cases

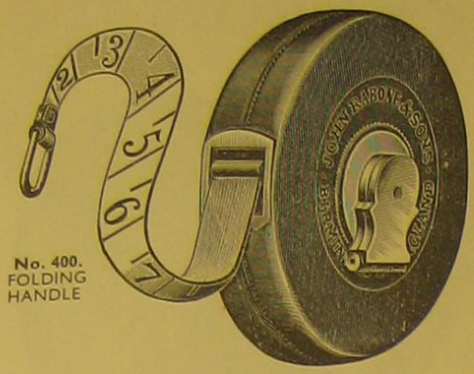
The reinforced bakelite case is almost unbreakable and is waterproof.
Tape has bright figures, etc., on black ground which makes an excellent contrast.

No.	Markings	Width of Tape Ins.	Price Each 25	33	50	66	75	—	100 ft. 30 met.
5151	One Side only. **Feet** into inches and 8ths.	3/8	10/6	11/6	15/-	18/6	20/6	—	25/6
5181		1/2	13/6	15/-	21/-	26/-	28/6	—	37/-
515	Marked **Feet and Links** (feet into inches and 8ths. ...	3/8	11/6	13/-	16/6	20/-	22/-	—	28/-
518		1/2	14/-	16/6	22/6	29/6	31/6	—	41/-
516	**London and Metre or any Two Measures** (feet into inches and 8ths and millimetres	3/8	14/-	16/6	21/6	27/-	—	32/-	38/-
519		1/2	17/6	26/6	28/-	36/-	—	42/-	50/-
5166	**London and Metre** (feet into inches and 8ths. and centimetres. 1st metre in m/m.	3/8	13/-	15/-	19/-	23/-	—	29/-	35/-
5196		1/2	16/-	18/	25/6	32/-	—	38/-	45/-

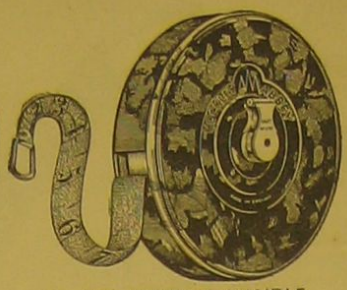
Refill Tapes only, without Cases, can be supplied. Prices on request.

MEASURING TAPES, ETC.

Rabone Wind-up Measuring Tapes (British Made)



No. 400. FOLDING HANDLE



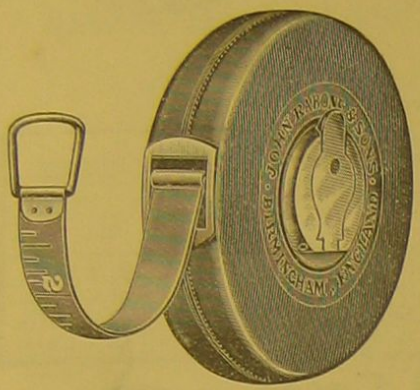
No. 270. FOLDING HANDLE BAKELITE CASE

"Rigida" Tapes are finest quality linen and are ½ inch and ⅝ inch wide.

Metallic Tapes are ⅝ inch wide.

Linen Tapes are 9/16 inch wide.

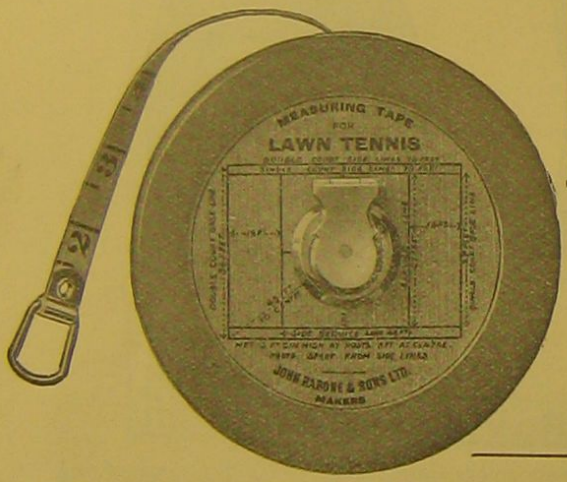
Bakelite Cases are reinforced, shock and waterproof, and has knurled edge for grip. Leather Cases are well made and strong.



No. 415. STEEL TAPE, FLUSH HANDLE

Marked on both sides, feet (in ½ ins.) and links or with any two measures.

No.	Tape	Case	Handle	Width of Tape Ins.	Price Each 25 —	33 10	50 15	60 20	75 —	— 25	100 30	— 40	feet. 50 Met
390	Rigida	Leather	Folding	⅝	7/9	9/–	11/–	13/–	14/–	15/–	17/6	25/–	30/–
391	Rigida	Leather	Flush	⅝	8/6	9/9	12/–	14/–	15/–	16/6	19/–	28/–	33/–
392	Rigida	Tape only for Nos. 39 or 391			3/9	4/6	6/3	7/6	8/6	9/6	12/–	—	—
385	Rigida	Leather	Folding	½	5/9	6/9	9/–	10/6	12/–	13/–	14/9	—	—
386	Rigida	Leather	Flush	½	7/–	8/–	10/–	12/–	13/9	14/6	16/3	—	—
387	Rigida	Tape only for Nos. 385 & 386			2/9	3/6	5/3	6/6	7/3	8/3	9/9	—	—
400	Metallic	Leather	Folding	⅝	7/9	9/–	11/–	13/–	14/–	15/–	17/6	25/–	30/–
401	Metallic	Leather	Flush	⅝	8/6	9/9	12/–	14/–	15/–	16/6	19/–	28/–	33/–
480	Metallic	Bakelite	Folding	⅝	6/9	8/–	10/–	12/–	13/–	14/–	16/6	—	—
481	Metallic	Bakelite	Flush	⅝	7/6	8/9	11/–	13/–	14/–	15/6	18/–	—	—
404	Metallic	Tapes only for Nos. 400, 401, 480, 481			3/9	4/6	6/3	7/6	8/6	9/6	12/–	—	—
250	Metallic	Leather	Folding	⅝	5/9	6/9	9/–	10/6	12/–	13/–	14/9	—	—
251	Metallic	Leather	Flush	⅝	7/–	8/–	10/–	12/–	13/9	14/6	16/3	—	—
270	Metallic	Bakelite	Folding	⅝	5/9	6/9	9/–	10/6	12/–	13/–	14/9	—	—
271	Metallic	Bakelite	Flush	⅝	7/–	8/–	10/–	12/–	13/9	14/6	16/3	—	—
252	Tapes only for Nos. 250 to 271				2/9	3/6	5/3	6/6	7/3	8/3	9/9	—	—
260	Linen	Leather	Folding	9/16	4/3	5/–	6/9	7/9	8/6	9/–	10/6	—	—
262	Linen	Tapes only for No. 260			1/10	2/4	3/4	4/3	4/9	5/3	6/6	—	—
2601	Linen	Leather	Folding	9/16	4/–	4/9	6/3	7/3	8/–	8/6	9/6	—	—



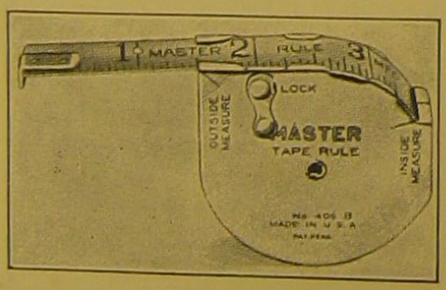
Rabone Lawn Tennis Measuring Tape No. 395

(British Made)

Leather case has diagram printed on it showing dimensions of Tennis Court. Linen tape, ½ in. wide × 78 ft. long.

Price ... ... **10/6 each**

"Master" Flexible Steel Tapes Nos. 306, 406B and 506B (Made in U.S.A.)



Inside measurements can be taken instantly and read directly. The exact measure is always shown at the point where the rule case sits against object measured. **An important feature is the Caliper Lever lock**—the retaining of measurements taken in hand—to get at places or where the vision is obscured.

No. 406B. 6 ft. graduated both sides nine measurement features for inside, outside, height, depth, flexible, marking, radius, trammel and layout.

Price ... ... **10/– each**

No. 506B. 6 ft. graduated one side only—six measurement features for inside, outside, height, depth, flexible and marking.

Price ... ... **6/9 each**

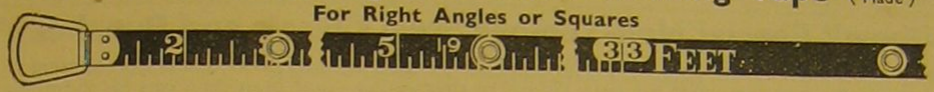
No. 306. Inside Measure Steel Tape Rule. In nickel-plated zinc case, with free-working pull-push action. Similar in style to "Master" Tapes illustrated.

Price .... **6/– each**

MEASURING TAPES

Rabone Steel Setting Out and Measuring Tape (British Made)

For Right Angles or Squares

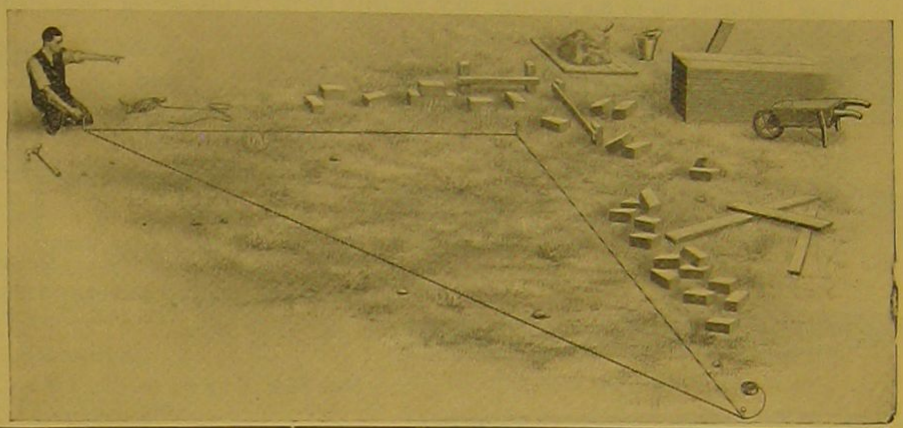


With the "Setting Out Tape" it is a simple and quick job **accurately and without assistance** to measure off angles and corners.
To builders, engineers, surveyors, shipwrights, etc., it is a great time saver.

Made in the following sizes:—

Length ft.	33	50	66	100
Hole at ins.	3	3	3	3
Eyelet swivel link at ...	8′ 6″	12′ 9″	16′ 9″	25′ 9″
Eyelet swivel link at ...	19′ 6″	29′ 5″	38′ 9″	58′ 7″
Hole at ...	33′ 3″	50′ 3″	66′ 3″	100′ 3″

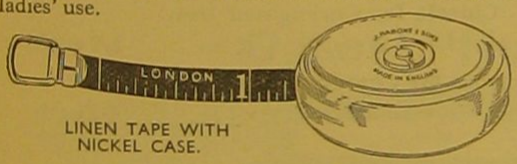
Prices each



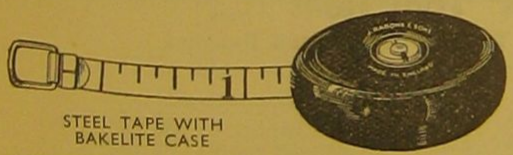
Marked one side only. Feet into inches in 8ths.							Marked both sides. One side feet into inches in 8ths. Reverse in links.						
No.	Case	Width of Tape, Ins.	Length, Feet				No.	Case	Width of Tape, Ins.	Length, Feet			
			33	50	66	100				33	50	66	100
SO 4151	Leather		18/6	24/-	27/-	37/-	SO 415	Leather		20/6	26/-	30/-	40/-
SO 4181	,,		20/6	26/6	32/-	43/-	SO 418	,,		23/-	29/6	36/6	48/-
SO 5151	Bakelite		16/6	20/-	23/6	30/6	SO 515	Bakelite		19/-	22/6	26/-	34/-
SO 5181	,,		20/-	26/-	31/-	42/-	SO 518	,,		22/6	28/6	35/6	47/-
SO 4351	Steel		14/6	18/-	21/6	28/-	SO 435	Steel		17/-	20/6	24/-	31/6
SO 4381	,,		19/-	25/-	29/6	41/-	SO 438	,,		22/-	27/6	34/-	45/-

Rabone Spring Tape Measures (British Made) With Steel or Woven Linen Tapes.

Case has rounded corners and tape is controlled by centre press button stop. Bakelite Woven Tape Cases are in attractive colours suitable for ladies' use.



LINEN TAPE WITH NICKEL CASE.



STEEL TAPE WITH BAKELITE CASE

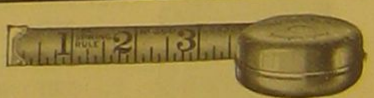
No.	Type of Case	Tape ½ inch Wide	3 feet 1 m're	5 feet 1⅔ m're	6 feet 2 m're
		Steel Tapes	Per doz.	Per doz.	Per doz.
3991	Bakelite ...	Ins. in 16ths on one side only	27/–	—	—
399	,, ...	Ins. in 16ths & metre in m/m's.	30/–	—	—
2991	Nickel Silver ...	Ins. in 16ths on one side only	33/–	46/–	52/–
299	,, ,, ...	Ins. in 16ths & metre in m/m's.	36/–	50/–	57/–
		Woven Linen Tapes			
3981	Bakelite (Red or Green) ...	Ins. in 8ths on one side only	18/–	—	—
398	,, ,, ,,	Ins. in 8ths & metre in m/m's.	21/–	—	—
2981	Nickel Silver ...	Ins. in 8ths on one side only	21/–	25/–	29/–
298	,, ,, ...	Ins. in 8ths & metre in m/m's.	24/–	28/–	32/–

Rabone "Spring-Flex" Rule

The rule is under definite control, both coming out and going into the case. It is manually operated no push button is required Case is of steel finished black. Fitted for "end on" or "hook on" measuring.

No. 370. Length 6 ft. Marked **Feet and Inches into 8ths** 3/6 each
,, **371.** Length 2 metres Marked **Centimetres and Millimetres** ... ... 3/6 each
,, **373.** Length 6 ft. Marked **Consecutive Inches in 16ths** 3/6 each
,, **375.** Length 2 metres, Marked **m/m. top edge, consecutive ins. in 16ths bottom edge** 3/6 each

Rabone Spring Rules



Contained in a small nickel-plated case, this rule can be used as a rigid tape, also for taking cylindrical measurements, etc. **The rule is pulled from the case** and is automatically retained at required length. It is always under control and is returned to the case by gentle pressure on a push button.

Prices, each

No. 350. Length, 6 ft., marked in 8ths, figured ft. and ins. 5/6
,, **353.** ,, ,, ,, ,, 16ths, ,, 1 to 72 ins. 5/6
,, **351.** ,, 2 metres ,, ,, c/m. and m/m. ... 5/6
,, **352.** ,, ,, ,, ,, ft. & ins. 16ths & m/m. 5/6

Rabone "Stiff-Flex" Rule

This is a simple acting rule which is not dangerous in use, because it is pulled from and pushed back into the case. There are no buttons to push or arms to grip to control the rule. **The case is bakelite,** 1⅞ ins. diam, and knurled on edge.

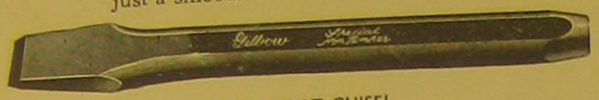
Prices, each

No. 360. Length, 6 ft., marked in 8ths, figured ft. and ins. 3/–
,, **360.** ,, 8 ft., ,, ,, ,, ,, 3/6
,, **361.** ,, 2 metres, marked c/m. and m/m. ... 3/–
No. 363. Length 6ft., marked consecutive ins. in 16ths 3/6
,, **363.** ,, 8 ft. ,, ,, ,, ,, 3/–
,, **365.** ,, 2 metres, marked m/m top edge and consecutive ins. in 16ths bottom edge ... 3/–

ENGINEERS' COLD CHISELS AND PUNCHES

"Gilbow" Special Non-Temper Steel Chisels and Punches (British Made)

These Chisels are made from a special non-temper steel which permits cutting the toughest iron or steel without fracturing They will stand up to the heaviest work for days before re-sharpening—and then they can be sharpened again by using just a smooth file.



No. 33. FLAT CHISEL

No. 34. CAPE CHISEL

No. 35. DIAMOND POINT CHISEL

No. 36. ROUND NOSE CHISEL

No. 37. PIN PUNCH

No. 38. CENTRE PUNCH

No. 39. HAND PUNCH

No. 40. LONG TAPERED PUNCH

Hand Cold Chisels (Oval Section)

No. 33A.	$5\frac{3}{4}\times\frac{3}{8}\times\frac{7}{16}$ in. cut,	1/3 ea.	No. 33G.	$8\times\frac{7}{8}\times1$ in. cut,	2/6 ea.
,, 33B.	$6\frac{1}{2}\times\frac{9}{16}\times\frac{9}{8}$,,	1/6 ,,	,, 33H.	$9\times\frac{7}{8}\times1$,,	2/9 ,,
,, 33C.	$7\times\frac{5}{8}\times\frac{3}{4}$,,	1/9 ,,	,, 33I.	$10\times\frac{7}{8}\times1$,,	3/- ,,
,, 33D.	$7\frac{1}{2}\times\frac{3}{4}\times\frac{7}{8}$,,	2/- ,,	,, 33J.	$12\times\frac{7}{8}\times1$,,	3/6 ,,
,, 33E.	$10\times\frac{3}{4}\times\frac{7}{8}$,,	2/6 ,,	,, 33K.	$8\frac{1}{2}\times1\times1\frac{1}{4}$,,	3/6 ,,
,, 33F.	$12\times\frac{3}{4}\times\frac{7}{8}$,,	2/9 ,,			

Cape Chisels

No. 34A. $6\times\frac{3}{8}\times\frac{1}{8}$ in. cut, 1/6 ea. No. 34B. $6\frac{1}{2}\times\frac{1}{2}\times\frac{1}{4}$ in. cut, 1/9 ea.
No. 34C. $7\times\frac{5}{8}\times\frac{3}{8}$ in. cut. 2/- ea.

Diamond Point Chisels

No. 35A. $6\times\frac{3}{8}\times\frac{1}{8}$ in. bit, 1/6 ea. No. 35B. $6\frac{1}{2}\times\frac{1}{2}\times\frac{1}{4}$ in. bit, 1/9 ea.
No. 35C. $7\times\frac{5}{8}\times\frac{3}{8}$ in. bit, 2/- ea.

Round Nose Chisels

No. 36A. $6\frac{1}{2}\times\frac{1}{2}\times\frac{1}{4}$ in. point, 1/9 ea. No. 36B. $7\times\frac{5}{8}\times\frac{3}{8}$ in. point, 2/- ea.

Pin Punches

No. 37A.	$6\times\frac{3}{8}\times\frac{1}{8}$ in. point,	1/3 ea.	No. 37C.	$6\times\frac{1}{2}\times\frac{1}{4}$ in. point,	1/6 ea.
,, 37B.	$6\times\frac{1}{2}\times\frac{3}{16}$,,	1/6 ,,	,, 37D.	$8\times\frac{5}{8}\times\frac{5}{16}$,,	2/- ,,

Centre Punches

No. 38A. $4\frac{1}{2}\times\frac{3}{8}$ in. stock, 1/3 ea. No. 38B. $5\times\frac{1}{2}$ in. stock, 1/6 ea.

Hand Punches (Sturdy Point)

No. 39A. $6\times\frac{3}{8}\times\frac{1}{16}$ in. point, 1/3 ea. No. 39B. $6\times\frac{1}{2}\times\frac{1}{8}$ in. point. 1/6 ea.
No. 39C. $8\times\frac{5}{8}\times\frac{3}{16}$ in. point, 2/- ea.

Long Tapered Punches

No. 40A. $8\times\frac{3}{8}\times\frac{5}{16}$ in. point, 2/-ea. No. 40B. $9\times\frac{1}{2}\times\frac{3}{16}$ in. point, 2/3 ea.
No. 40C. $10\frac{1}{2}\times\frac{5}{8}\times\frac{1}{4}$ in. point, 2/6 ea.

Chisels for Corrugated Iron

Octagon, $8\times\frac{5}{8}$ in. ... 2/3 each. $8\times\frac{3}{4}$ in. ... 2/9 each

Punches for Corrugated Iron

Octagon, $7\times\frac{1}{2}$ in. ... 2/- each $7\times\frac{5}{8}$ in. ... 2/3 each

"Gilbow" Mechanics' Tool Rolls (British Made)

Fitted with "Gilbow" Special Non-Temper Chisels and Punches

No. 1 TOOL ROLL

No. 1

Contains 4 Tools in neat roll

No. 38B.	Centre Punch	$5\times\frac{1}{2}$	ins.
,, 37C.	Pin Punch ...	$6\times\frac{1}{2}\times\frac{1}{4}$	,,
,, 34B.	Cross Cut Chisel	$6\frac{1}{2}\times\frac{1}{2}\times\frac{1}{4}$	,,
,, 33D.	Flat Chisel ...	$7\frac{1}{2}\times\frac{3}{4}\times\frac{7}{8}$	,,

Price, complete ... 8/-

No. 2

Contains 9 Tools in neat roll

No. 38A.	Centre Punch	$4\frac{1}{2}\times\frac{3}{8}$	ins.
,, 33A.	Flat Chisel	$5\frac{3}{4}\times\frac{3}{8}\times\frac{7}{16}$	,,
,, 39A.	Hand Punch	$6\times\frac{3}{8}\times\frac{1}{16}$	,,
,, 37A.	Pin Punch	$6\times\frac{3}{8}\times\frac{1}{8}$	,,
,, 37B.	Pin Punch	$6\times\frac{1}{2}\times\frac{3}{16}$	,,
,, 37C.	Pin Punch	$6\times\frac{1}{2}\times\frac{1}{4}$	,,
,, 36A.	Round Nose Chisel ...	$6\frac{1}{2}\times\frac{1}{2}\times\frac{1}{4}$	,,
,, 33D.	Flat Chisel	$7\frac{1}{2}\times\frac{3}{4}\times\frac{7}{8}$	,,
,, 40A.	Long Taper Punch ...	$8\times\frac{3}{8}\times\frac{5}{32}$	,,

Price, complete ... 15/6

COMET Engineers' Cold Chisels

(Sheffield Made)

These chisels are nicely finished, moderate in price.

Sizes and Prices

Length ... ... ins.	4	4	5	5	5	6	6	7	7
Width ... ... ,,	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$
Price per Dozen	3/10	4/5	4/5	4/5	4/5	5/-	6/-	6/7	8/3
Length ... ... ins.	8	8	8	8	8	10	10	10	12
Width ... ... ,,	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$\frac{3}{4}$	$\frac{7}{8}$	1	1
Price per Dozen	7/2	9/4	11/-	15/5	19/10	13/3	17/7	22/-	25/4

A cheaper quality tool can be supplied, prices on Application.

TINMEN'S SNIPS, Etc.

"Gilbow" Snips (British Made)

No. 66. STRAIGHT HANDLE

No. 67. CRANKED HANDLE

These Snips cut curves and circles as well as straight lines. They are made from high-grade forged steel in two patterns:—Straight handle or cranked handle to give hand clearance, made in two sizes, 11 ins and 14 ins. long overall. For sheet-metal workers, motor mechanics, plumbers, etc., they are exceptionally useful.

Size, length, ins.	11	14	
No. 66 Straight Handle	6/–	9/–	per pair
No. 67 Curved or Cranked Handle	6/6	10/–	,,
No. 66L. Left Hand Style, Straight Handle	6/6	9/6	,,
No. 67L. Left Hand Style, Curved or Cranked Handle	7/–	10/6	,,

"Gilbow" Tinmen's Snips (British Made)

With Straight or Curved Blades, Japanned Handles, Polished Heads.

No. 55. STRAIGHT BLADES

No. 055. CURVED BLADES

These are of the universal pattern, with straight or curved blades and straight handles. They are made from warranted best forged steel.

Sizes and Prices

Length overall	6	7	8	9	10	11	12	13	14	16	ins.
Price, No. 55 Straight Blades	1/7	1/11	2/1	2/6	2/9	3/5	4/–	4/9	5/6	7/–	per pair
Price, No.055 Curved Blades	2/6	2/9	2/11	3/3	3/10	4/6	5/3	6/–	7/–	8/6	,,

Gilbow "No-Nip" Snips No. 70 (British Made)

NOTE THE IMPOSSIBILITY OF NIPPING THE HAND WHEN BLADES ARE FULLY CLOSED.

An important alteration in design of tinmen's snips, which eliminates all risk of nipping the hand by the shank ends. One uses this snip with confidence and without fear of injury, thus doing quicker and better work.

Size, length overall, ins.	8	10	12	14	
No. 70. Straight Blades	2/3	3/–	4/3	6/–	per pair
No. 71. Bent Blades	3/3	4/3	5/9	7/9	,,

Fitted with spring at 1/– per pair extra.

"No-Nip" Snip Display—An attractive easel mounted with one each of 4 sizes is provided with an order for 12 Snips as follows:—3 pairs 8 in.; 4 pairs, 10 in.; 3 pairs 12 in.; and 2 pairs 14 in. at a **Total Cost of £1 9 0 net.**

Gilbow Household Shear

THE HOUSEHOLD SHEAR
JUST THE TOOL FOR THE HANDYMAN
For easy cutting through sheet iron, tin, or metal.
WARRANTED BRITISH MANUFACTURE

This is a very handy tool for jobs about the home for trimming worn shovels, sheet iron, cardboard, lino, carpets, etc. **Price**, length 8 inches, **1/9 each.** **Price**, length 6 inches **1/4 each.**

Comet Jewellers' Snips (Foreign)

Forged Steel, Oil Hardened.

No. 3138S. Black. Polished. Straight blades—7 inches, **19/3** per dozen.

No. 3148S. Black. Polished, Curved blades—7 inches, **23/3** per dozen.

Wiss No. 9 X "Scroll Pivoter" Snip for Metal

(Made in U.S.A.)

Will cut intricate shapes, circles, scrolls and squares, as easily as a straight line.

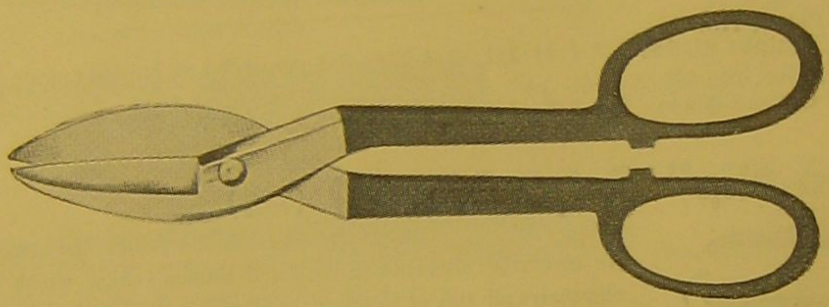
The "Scroll Pivoter" will also cut galvanised sheets up to 18 gauge and monel metal sheets of average thickness.

The pivoting principle enables all operations to be carried out with ease. Finished rust resisting dull grey enamel.

Length 12 inches. Weight, 1¾ lbs.

Price ... ... 25/- each

Wiss Essex Brand Tinmen's Snips (Made in U.S.A.)



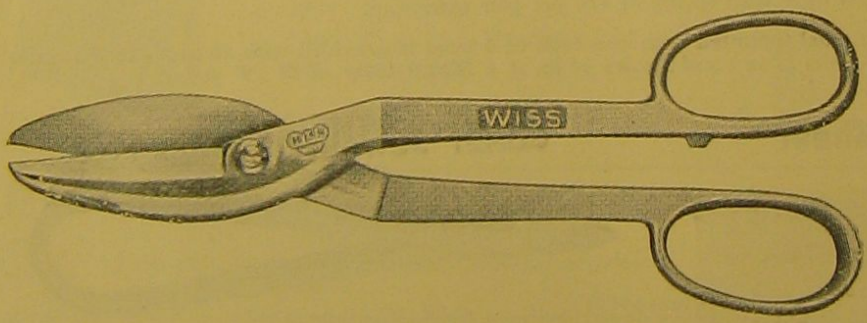
Solid Crucible Steel

Red Japanned Handles.

Sizes and Prices.

No.	**A13**	**A12**	**A11**	**A10**	**A9**
Length, ins.	7	8	9¾	11	12½
Price per pair	**3/9**	**4/3**	**4/6**	**5/-**	**6/3**

Wiss Tinmen's Snips (Made in U.S.A.)



These snips are made in two styles, Regular and Combination.

In the Combination type the form of the blades is such that they can be used equally well for cutting circular and irregular shapes and for straight cutting.

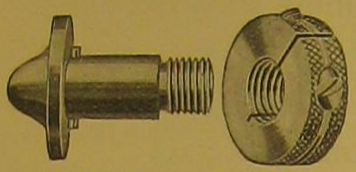
Sizes and Prices

	Regular Pattern								**Combination Pattern**			
No.	... **13**	**12**	**11**	**10**	**9**	**8**	**7**	**6½**	**100**	**19**	**18**	**17**
Length ...	ins. 7	8	9½	11½	12½	13¾	14¼	15¾	11½	12½	13½	14½
Price per pair	... **5/6**	**6/6**	**7/6**	**9/9**	**10/6**	**12/6**	**14/6**	**16/9**	**10/6**	**11/6**	**13/9**	**15/9**

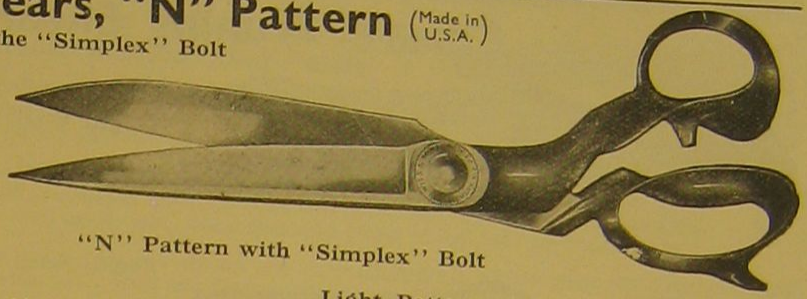
SHEARS AND TRIMMERS

Wiss Tailors' Shears, "N" Pattern (Made in U.S.A.)

Fitted with the "Simplex" Bolt



The "Simplex" Bolt

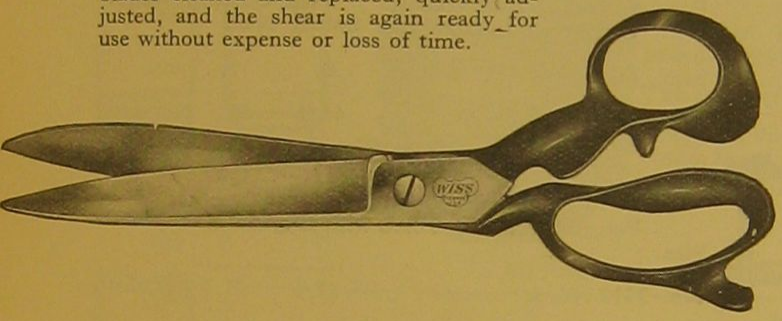


"N" Pattern with "Simplex" Bolt

The "Simplex" Bolt enables the user of the shears to get practically any adjustment of the blades that he pleases, the method consisting of tightening the split nut to the required degree, and then locking same in position by a slight tightening of the auxiliary screw.

The Bolt can be removed in a few seconds, blades cleaned and replaced, quickly adjusted, and the shear is again ready for use without expense or loss of time.

Light Pattern						
No.	**3 N**	**3½ N**	**4 N**	**4½ N**		
Length	12	12½	12¾	13		ins.
Price, Japanned	**32/3**	**34/6**	**36/6**	**39/6**		**per pair**
Heavy Pattern						
No.	**5 N**	**6 N**	**7 N**	**8 N**	**9 N**	**10 N**	**11 N**
Length	13	13½	14	14½	15	15½	16	ins.
Price, Japanned	**54/–**	**58/4**	**62/6**	**66/8**	**71/–**	**75/–**	**83/6**	**per pair**

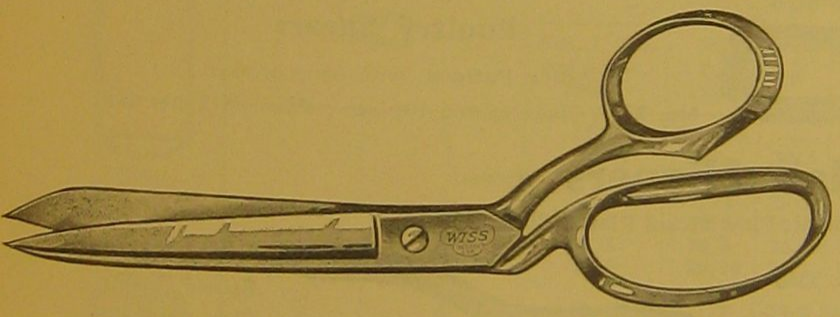


With Plain Bolt, I.S.				
No.	**2 I.S.**	**3 I.S.**	**4 I.S.**	**5 I.S.**
Length	10½	11¼	12	12½	ins.
Price, Japanned	**15/6**	**17/9**	**19/9**	**22/–**	**per pair**

Wiss Bent Trimmers (Made in U.S.A.)

Made with crucible steel inlaid blades that are smooth cutting and stay sharp.
The handles are bent so that material can be cut lying flat on the table.

Bent trimmers 9½ ins. or over have two sharp points, smaller sizes have one sharp and one blunt point. Supplied either full nickel-plated or with japanned handles and nickeled blades.

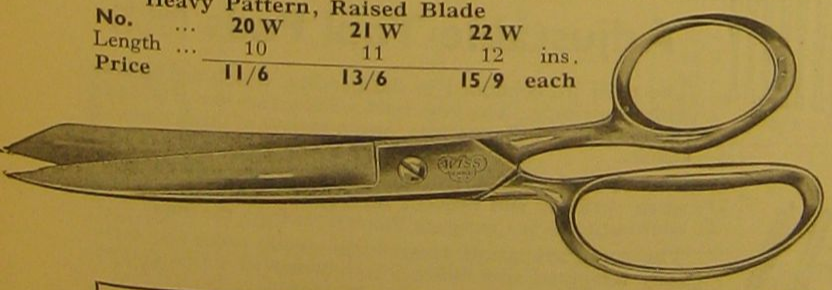


Prices—Regular Pattern

Full Length ... ins.	6	6½	7	7½	8	8½	9	9½	10	11	12	13
No., Japanned	**26**	**26½**	**27**	**27½**	**28**	**28½**	**29**	**29½**	**20**	**21**	**22**	**23**
Price per Dozen	**65/-**	**70/-**	**75/-**	**77/6**	**80/-**	**85/-**	**100/-**	**120/-**	**130/-**	**145/-**	**160/-**	**190/-**
No., Nickeled	**126**	**126½**	**127**	**127½**	**128**	**128½**	**129**	—	**120**	—	—	—
Price per Dozen	**75/-**	**82/6**	**87/6**	**90/-**	**95/-**	**105/-**	**120/-**	—	**150/-**	—	—	—

Heavy Pattern, Raised Blade

No.	**20 W**	**21 W**	**22 W**
Length	10	11	12	ins.
Price	**11/6**	**13/6**	**15/9**	**each**



Wiss Straight Trimmers

(Made in U.S.A.)

With crucible steel inlaid blades. Supplied either full nickel-plated or with nickeled blades and japanned handles.

Full Length ... ... ins.	5½	6	6½	7	7½	8	8½	9	10	12
No., Japanned	**35½**	**36**	**36½**	**37**	**37½**	**38**	**38½**	**39**	**30**	**32**
Price per Dozen	**60/-**	**62/6**	**65/-**	**70/-**	**75/-**	**77/6**	**82/6**	**97/6**	**120/-**	**155/-**
No., Nickeled	**135½**	**136**	**136½**	**137**	**137½**	**138**	**138½**	**139**	**130**	—
Price per Dozen	**70/-**	**75/-**	**77/6**	**82/6**	**87/6**	**90/-**	**100/-**	**112/6**	**150/-**	—

PRUNING SHEARS, TOOL PADS, Etc.

COMET Pruning Shears (Foreign)

Pruning Shears

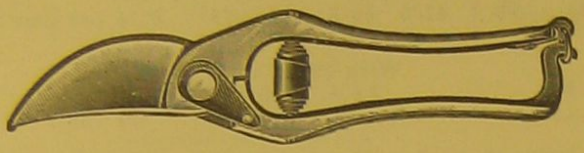
Forged Steel. Best quality. Two Cutting Edges. Checkered Handles.

No. 2320P/1. Polished, Length, 8 ins. **Price 42/6 p. doz.**

Pruning Shears

Forged Steel. Checkered Handle with clap fastener and screw.

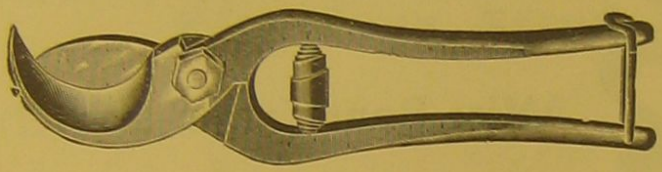
Size	6¾	8	9	ins.
No. 2316P Polished	—	31/–	34/3	doz.
No. 2316B/1A. Polished. Best Quality	—	37/9	41/3	,,
No. 2316N. Ladies' Pattern Plain Handle. Nickel-plated ...	21/–	—	—	,,



Pruning Shears

Forged Steel. Best Quality. Two Cutting Edges Checkered Handles and Safety Nut.

Size	8½	9½	ins.
No. 2317/1. All Bright ...	46/3	55/–	per doz.



Pruning Shears

Parrot Bill Pattern

Forged Steel. Black with Bright Cutters.

Size	7	8	ins.
No. 2318. Black	27/6	31/6	per doz.

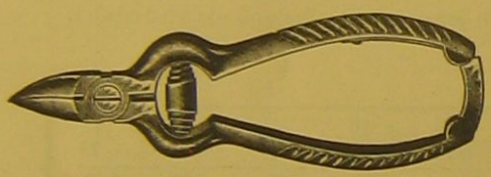
Poultry Shears

Adler Pattern, with bone breaker.

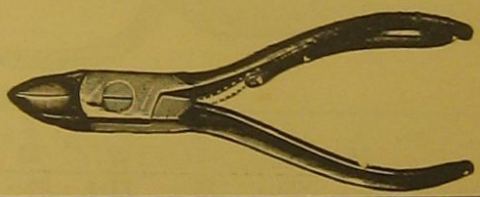
No. 2311. Nickel-plated, 10½ ins. **Price 46/9 per doz.**

COMET Nail Nippers (Foreign)

Made of Forged Steel. Fine Nickel Plated Finish.



No. 2368
Size 4½ 5 ins.
Price 42/- 51/3 per doz.



No. 2361
Second Quality.
Size 4 4½ ins.
Price 28/9 34/3 per doz.

HOLDER FOR STYLES **Nos. 1, 4**

TOOLS FOR HOLDER **No. 1**

TOOLS FOR HOLDER **No. 4**

Millers Falls—Goodell Pratt Adjustable Tool Pads (Made in U.S.A.)

The tools are contained in the handles, which are hollow, with screw caps. The jaws hold, with a vice-like grip, tools as shown in the illustrations, also a variety of other kinds of shanks.

Socket and shell threads are carefully cut so as to mesh perfectly and prevent shell from working loose and allowing tools to disengage themselves from the jaws.

The tools are made from high-grade steel and carefully tempered and finished and honed to a fine cutting edge.

Handles are beautifully finished tropical wood with heavily nickeled shell and jaws.

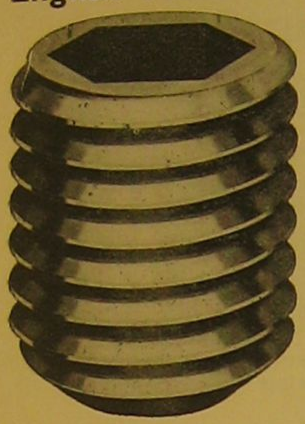
Prices

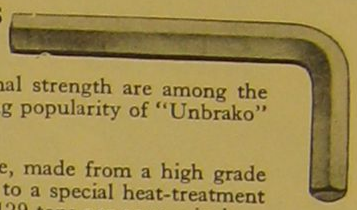
No. 1. 6 inches long, with 20 tools 1¾ inches long, **7/6 each**
No. 4. 6¼ ,, ,, 10 ,, 2¼ ,, **10/6** ,,

KNURLED SET SCREWS

English Made "Unbrako" Hollow Safety Set Screws

Hexagon Hole—Cup or Dog Points





Accessibility, compactness of design and exceptional strength are among the prominent features, which account for the increasing popularity of "Unbrako" Hollow Safety Set Screws.

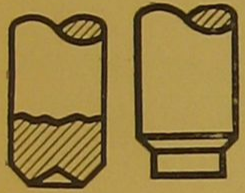
They possess incredible strength, being as they are, made from a high grade alloy steel, machined from the solid and subjected to a special heat-treatment process—and under test have withstood a strain of 129 tons per square inch.

Threads are die cut and chased and pitch diameter is within unusually close tolerances, and in accordance with standard specifications.

The safety feature also has much to recommend "Unbrako" screws for assembly work.

Sizes other than those listed are special, and prices will be quoted against specification. The following details:—Diameter, style, number of threads per inch, and length should be specified when ordering.

"UNBRAKO" SCREW POINTS



CUP HALF DOG

"Unbrako" Self-Locking Set Screws

Patented Knurled Self-Locking Thread

"Unbrako" Hollow Safety Set Screws can also be supplied with a patented self-locking thread at the top of the screws.

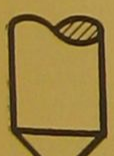
This feature enables "Unbrako" screws always to be securely locked.

They will not move under the greatest vibrational conditions and can always be relied upon to give the utmost service in all circumstances.

Prices as for Standard "Unbrako" Screws, given below.

All Prices are per 100 Screws. Any quantity supplied.

OVAL



CONE

FLAT

Length Inches		Diameter of Screws, Inches									
		Nos. 1, 2, 3, and 4 B.A., and $\frac{3}{16}$	No. 0 B.A., and $\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$ Gas	$\frac{7}{16}$	$\frac{1}{2}$ Gas	$\frac{5}{8}$ Gas	$\frac{3}{4}$ Gas	$\frac{7}{8}$ Gas	1 Gas
Length Overall	$\frac{3}{16}$	19/7	19/10	—	—	—	—	—	—	—	—
	$\frac{1}{4}$	19/10	20/-	20/3	20/5	—	—	—	—	—	—
	$\frac{5}{16}$	20/-	20/3	20/5	20/8	24/2	—	—	—	—	—
	$\frac{3}{8}$	20/3	20/5	20/8	20/10	24/7	28/4	—	—	—	—
	$\frac{7}{16}$	20/5	20/8	20/10	21/10	25/-	28/9	40/5	—	—	—
	$\frac{1}{2}$	20/8	20/10	21/8	22/9	26/1	29/2	40/10	48/9	—	—
	$\frac{9}{16}$	20/10	21/7	22/6	23/8	27/1	30/5	41/3	49/2	—	—
	$\frac{5}{8}$	21/6	22/4	23/4	24/7	28/2	31/8	41/8	49/7	—	—
	$\frac{3}{4}$	22/9	23/9	25/-	26/6	30/3	34/2	44/7	50/-	62/1	82/6
	$\frac{7}{8}$	24/-	25/3	26/8	28/4	32/4	36/8	47/6	53/9	62/6	82/11
	1	25/3	26/8	28/4	30/3	34/5	39/2	50/5	57/6	67/1	83/4
	$1\frac{1}{4}$	27/9	29/7	31/8	34/-	38/7	44/2	56/3	65/-	76/3	95/-
	$1\frac{1}{2}$	—	32/6	35/-	37/9	42/9	49/2	62/1	72/6	85/5	106/8
	$1\frac{3}{4}$	—	35/5	38/4	41/6	46/11	54/2	67/11	80/-	94/7	118/4
	2	—	38/4	41/8	45/3	51/1	59/2	73/9	87/6	103/9	130/-
	$2\frac{1}{4}$	—	44/2	48/4	52/9	59/5	64/2	79/7	95/-	112/11	141/8
	$2\frac{1}{2}$	—	50/-	55/-	60/3	67/9	69/2	85/5	102/6	122/1	153/4
	$2\frac{3}{4}$	—	55/10	61/8	67/9	76/1	74/2	91/3	110/-	131/3	165/-
	3	—	61/8	68/4	75/3	84/5	79/2	97/1	117/6	140/5	176/8
Add for each $\frac{1}{4}$-in. length not listed		5/-	5/10	6/8	7/6	8/4	10/-	11/8	15/-	18/4	23/4
Extra Wrenches, each ...	Short	/1½	/1½	/2	/2½	/3	/3½	/5	/8	1/1	1/6
	Long	/2	/2	/2½	/3	/3½	/4	/6	/10	1/6	2/1
		Dimensions									
Whitworth or U.S.S. Threads per inch ...		24	20	18	16	14	*12	11	10	9	8
B.S.F. Threads per inch ...		32	26	22	20	18	16	14	12	11	10
Amer. Std. Coarse Threads per inch		—	20	18	16	14	13	12	10	9	8
Size of Hex. Hole, inch ...		$\frac{3}{32}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{9}{16}$

One Wrench free with each 25 Screws. *$\frac{1}{2}$ inch diam. screws—Whitworth, 12 threads per inch; N.C., 13 threads per inch.

English Made

Knurled "Unbrako" Socket Head Cap Screws

Heads Concentric with Bodies. Hexagon Hole

FINGERS BECOME GEARED TO THE KNURLED "UNBRAKO" AND THEREFORE CANNOT SLIP

Knurled "Unbrako" Cap Screws are the speediest, cheapest and quickest product of their kind and can be run down by hand and tightened with a hexagon wrench, with great rapidity.

The fingers cannot slip on these screws—they actually become geared to the knurled head. If pliers are used in place of the regular wrench for tightening, the knurled "Unbrako" has a torque five times that of a smooth head.

The knurling has the further and great advantage of making it simple to **securely lock** these "Unbrako" screws, when countersunk, a matter practically impossible with smooth head screws.

"Unbrako" Screws are of tremendous strength and high quality—features which are made possible by the use of special alloy steel, heat treated.

Threads are die cut and chased and pitch diameter is held to very close tolerances in accordance with B.E.S.A. Standard, Table 2, specification.
Sides of hexagon hole are parallel to the bottom.

Wrenches are of the same super steel as the screws, but slightly harder to obviate wear on corners.

All screws and wrenches not listed are special, and prices will be quoted on receipt of definite specifications.

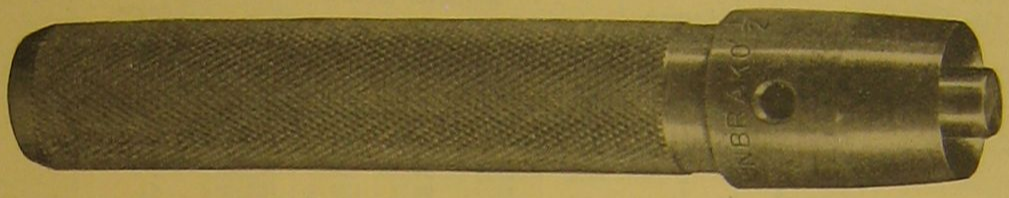
All Prices are per 100 Screws. Any quantity supplied

Length Inches	Diameter of Screws, Inches									
	Nos. 1, 2, 3, 4, & 6 B.A., and $\frac{3}{16}$	No. O.B.A. and $\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$ $\frac{1}{8}$ Gas	$\frac{7}{16}$	$\frac{1}{2}$ $\frac{1}{4}$ Gas	$\frac{5}{8}$ $\frac{3}{8}$ Gas	$\frac{3}{4}$ $\frac{1}{2}$ Gas	$\frac{7}{8}$ $\frac{5}{8}$ Gas	1 $\frac{3}{4}$ Gas
Extreme Length under Head $\frac{1}{2}$	21/3	22/11	27/1	30/10	37/1	42/6	—	—	—	—
$\frac{5}{8}$	22/1	24/-	28/2	32/1	38/4	44/2	—	—	—	—
$\frac{3}{4}$	22/11	25/-	29/2	33/4	39/7	45/10	—	—	—	—
1	26/1	28/2	32/4	37/6	43/9	51/1	75/-	—	—	—
$1\frac{1}{4}$	29/2	31/3	35/5	41/8	47/11	56/3	82/4	86/6	—	—
$1\frac{1}{2}$	32/4	34/5	38/7	45/10	52/1	61/6	89/7	95/10	—	—
$1\frac{3}{4}$	35/5	37/6	41/8	50/-	56/3	66/8	96/11	105/3	166/8	—
2	38/7	40/8	44/10	54/2	60/5	71/11	104/2	114/7	178/2	189/7
$2\frac{1}{4}$	—	43/9	47/11	58/4	64/7	77/1	111/6	124/-	189/7	204/2
$2\frac{1}{2}$	—	46/11	51/1	62/6	68/9	82/4	118/9	133/4	201/1	218/9
$2\frac{3}{4}$	—	50/-	54/2	66/8	72/11	87/6	126/1	142/9	212/6	233/4
3	—	53/2	57/4	70/10	77/1	92/9	133/4	152/1	224/-	247/11
$3\frac{1}{4}$	—	59/5	63/7	75/-	81/3	97/11	140/8	161/6	235/5	262/6
$3\frac{1}{2}$	—	65/8	69/10	79/2	85/5	103/2	147/11	170/10	246/11	277/1
4	—	78/2	82/4	95/10	102/1	113/7	162/6	189/7	269/10	306/3
$4\frac{1}{2}$	—	—	—	112/6	—	124/-	177/1	208/4	292/9	335/5
5	—	—	—	129/2	—	134/5	191/8	227/1	315/8	364/7
$5\frac{1}{2}$	—	—	—	—	—	144/10	206/3	245/10	338/7	393/9
6	—	—	—	—	—	155/3	220/10	264/7	361/6	422/11
Add for each $\frac{1}{4}$-inch length not listed	6/3	6/3	6/3	8/4	8/4	10/5	14/7	18/9	22/11	29/2
Extra Wrenches, each Short	/2	/2½	/3	/5	/5	/8	1/1	1/6	1/6	1/11
Extra Wrenches, each Long	/2½	/3	/3½	/6	/6	/10	1/6	2/1	2/1	2/9
Whitworth or U.S. Thds. per inch	**Dimensions**									
B.S.F. Threads per inch	$\frac{3}{16}$–24	20	18	16	14	*12	11	10	9	8
Amer. Std. Coarse Thds., per inch	$\frac{3}{16}$–32	26	22	20	18	16	14	12	11	10
Max. Head Diam., inch 3BA	—	20	18	16	14	13	11	10	9	8
Max. Head Diam., inch 4BA	$\frac{7}{32}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{5}{16}$
Max. Head Diam., inch Others	$\frac{5}{16}$									
Max. Head Height, inch	·190	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Size of Hex. Hole, inch	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{5}{8}$

One Wrench free with each 25 Screws. *½ inch diam. screws—Whitworth, 12 threads per inch; Amer. N.C., 13 threads per inch

Knurled "Unbrako" Socket Head Cap Screws can be supplied from stock in longer lengths than listed. Prices on request.

Methods of Locking "Unbrako" Socket Head Cap Screws



Locking Tool for Knurled "Unbrako" Socket Head Cap Screws

The main features of this tool are the sharp circular edge which when driven into the surface displaces the metal and the central pilot which fits the hexagon socket and centres the tool.

The Knurled "Unbrako" Locking Tool is not carried in stock but made to order. Prices quoted on application.

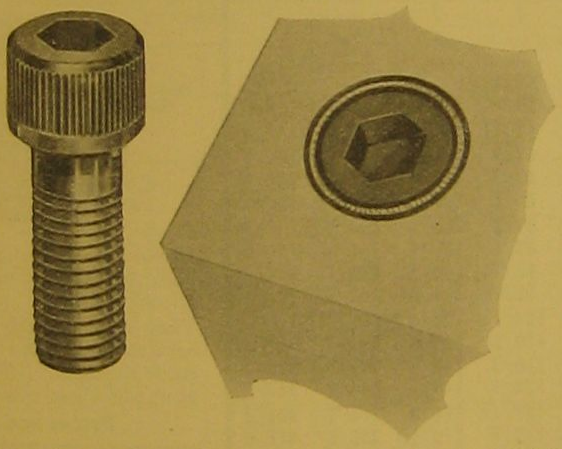


Fig. 1. KNURLED "UNBRAKO" SOCKET HEAD CAP SCREW shown before and after being Countersunk and Locked

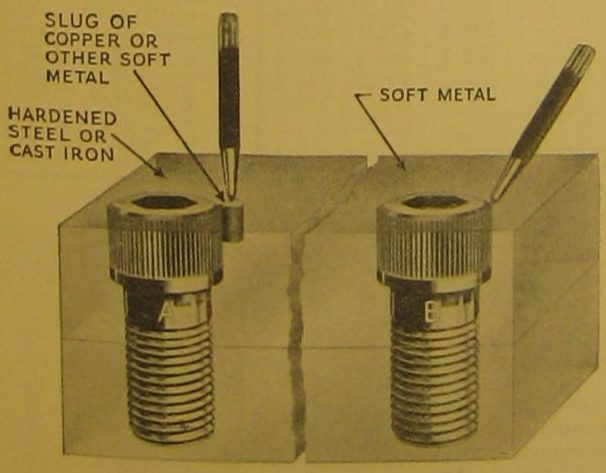


Fig. 2. KNURLED "UNBRAKO" SOCKET HEAD CAP SCREWS are here shown being locked in two different ways.

How the Knurl Helps to Lock

It is practically impossible to lock the ordinary Socket Head Cap Screw when countersunk, because the standard Lock Washer is entirely too big in diameter.

Again the knurling of the "Unbrako" Socket Head Cap Screw demonstrates its value by rendering locking both easy and dependable.

Fig. 1 shows the Knurled "Unbrako" both before and after being countersunk and locked, while above the illustration is of the Locking Tool.

The locking is very simple and briefly done as follows:

After the countersunk Knurled "Unbrako" has been screwed home the pilot of the locking-tool is inserted into the hexagon socket and with a few smart blows by a hammer the sharp circular edge of the tool sinks into the surface by displacing some metal which engages the knurls as shown in Fig. 1 on the right, and locks the "Unbrako" securely. It will never work loose by itself and when you want to unscrew it a wrench has to be used.

The Knurled "Unbrako" can be locked repeatedly in the same hole.

In Fig. 2 are shown two other methods of locking the Knurled "Unbrako" but without using a special tool—an ordinary centre-punch does the job.

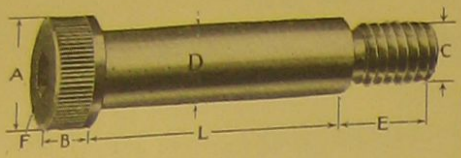
In "A" where the material is either cast iron or hardened steel it will be seen that a soft metal slug has been inserted in a blind hole drilled parallel to the counterbore and so large in diameter that it breaks through so the Knurl is exposed. A centre-punch driven into the slug as shown will expand it sufficient to engage the Knurl, thereby locking the "Unbrako."

In "B" the surface is of soft metal when the mere nicking of the edge of the counterbore with a centre-punch so it projects into a Knurl is enough to lock the "Unbrako."

The Knurled feature, therefore, serves a double purpose —it reduces costs by speeding up production and provides simple and effective means for locking.

STRIPPER BOLTS, SET SCREWS & PIPE PLUGS

"Unbrako" Knurled Socket Head Stripper Bolts (Made in U.S.A.)



Stripper bolts are standardised in a large variety of diameters and lengths and designed with a very low head.
They are made of the regular "Unbrako" high quality special alloy steel and they have the **Knurled Head for speedy operation.**

All Prices are per 100 Bolts. Any quantity supplied

Dimensions

D	A	B	C Dia.	C Whit. Thds.	E	F Across Flats.	L
¼	9/16	1/16	5/16	18	1/16	5/16	Refer to length column in Price List
5/16	11/16	1/16	3/8	16	1/16	7/16	
3/8	13/16	1/16	7/16	12	1/16	9/16	
7/16	15/16	1/16	1/2	11	1/16	5/8	
1/2	1	1/16	9/16		1/16	3/4	

Length L, Ins.	Diameter D, Ins. 5/16	3/8	1/2	5/8	3/4
1	38/7	46/11	64/-	93/9	96/8
1¼	41/8	52/1	70/5	102/11	110/10
1½	44/10	57/4	76/11	112/1	120/-
1¾	47/11	62/6	83/4	121/3	131/8
2	54/2	67/9	89/10	130/3	143/4
2¼	—	72/11	96/3	139/5	155/3
2½	64/7	78/2	102/11	148/7	166/11
2¾	69/10	83/4	109/5	157/9	178/7
3	75/-	88/7	115/10	166/8	190/3
3¼	—	93/9	122/4	175/10	201/11
3½	—	99/-	129/-	185/-	213/7
3¾	—	104/2	135/5	194/2	225/5

Length L, Ins.	Diameter D, Ins. 3/8	1/2	5/8	3/4
4	109/5	141/11	203/2	237/1
4¼	—	148/4	212/4	249/-
4½	—	155/-	221/6	260/8
4¾	—	161/6	230/8	272/4
5	—	167/11	239/7	284/-
5½	—	—	257/11	307/6
6	—	—	276/1	330/10
6½	—	—	—	377/9
7	—	—	—	424/7
8	—	—	—	518/4

One Wrench free with each 25 Stripper Bolts.

"Unbrako" Square Head Set Screws (Made in U.S.A.)

These Screws are made from particularly strong alloy steel and are carefully heat-treated.

All Prices are per 100 Screws

Length Under Head	Diameter of Screws, Inches ¼	5/16	3/8	7/16	½	9/16	5/8	¾	7/8	1
½	17/11	22/4	26/11	—	—	—	—	—	—	—
5/8	19/2	23/7	28/7	30/10	37/1	—	—	—	—	—
¾	20/5	24/10	30/3	32/11	39/2	47/6	52/1	—	—	—
7/8	21/8	26/1	31/11	35/-	41/3	50/-	55/-	—	—	—
1	22/11	27/4	33/7	37/1	43/4	52/6	57/11	71/8	89/7	166/8
1¼	25/5	29/10	36/11	41/3	47/6	57/6	63/9	78/9	100/-	184/7
1½	28/-	32/4	40/3	45/5	51/8	62/6	69/7	85/10	110/5	202/6
1¾	30/5	34/10	43/7	49/7	55/10	67/6	75/5	92/11	120/10	220/5
2	32/11	37/4	46/11	53/9	60/-	72/6	81/3	100/-	131/3	238/4
2¼	35/5	39/10	50/3	57/11	64/2	77/6	87/1	107/1	141/8	256/3
2½	37/11	42/4	53/7	62/1	68/4	82/6	92/11	114/2	152/1	274/2
2¾	40/5	44/10	56/11	66/3	72/6	87/6	98/9	121/3	162/6	292/1
3	42/11	47/4	60/3	70/5	76/8	92/6	104/7	128/4	172/11	310/-
3¼	—	—	63/7	74/7	80/10	97/6	110/5	135/5	183/4	327/11
3½	—	—	66/11	78/9	85/-	102/6	116/3	142/6	193/9	345/10
3¾	—	—	70/3	82/11	89/2	107/6	122/1	149/7	204/2	363/9
4	—	—	73/7	87/1	93/4	112/6	127/11	156/8	214/7	381/8
4½	—	—	88/7	103/9	110/-	122/6	139/7	170/10	235/5	417/6
5	—	—	103/7	120/5	126/8	142/6	151/3	185/-	256/3	453/4
5½	—	—	—	—	143/4	162/6	174/7	213/4	277/1	489/2
6	—	—	—	—	160/-	182/6	197/11	241/8	297/11	525/-
6½	—	—	—	—	—	—	—	270/-	339/7	566/8
7	—	—	—	—	—	—	—	298/4	381/3	608/4
7½	—	—	—	—	—	—	—	326/8	422/11	650/-
8	—	—	—	—	—	—	—	355/-	464/7	691/8
8½	—	—	—	—	—	—	—	—	506/3	733/4
9	—	—	—	—	—	—	—	—	547/11	775/-
Whitworth Thrds. per in.	20	18	16	14	12	12	11	10	9	8

On sizes not shown take prices of next larger size.

"Unbrako" Socket Head Pipe Plugs

(Made in U.S.A.)

These Pipe Plugs are of the same high quality and material as the other "Unbrako" products.
They are accurately threaded and heat-treated, and are to be recommended where reliable pipe plugs are required.

Prices and Sizes

Diam. (Pipe Size) In.	Price per 100 Plugs	Price per 100 Wrenches Short Arm	Size of Hex. Hole Across Flats In.
⅛	20/10	20/10	3/16
¼	29/2	29/2	1/4
3/8	41/8	41/8	5/16
½	50/-	62/6	3/8
¾	83/4	145/10	9/16
1	125/-	187/6	5/8

Fig. 1026-8

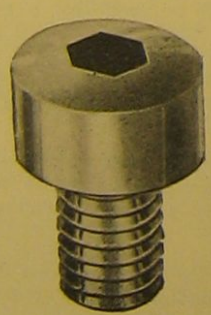


Fig. 1021-4

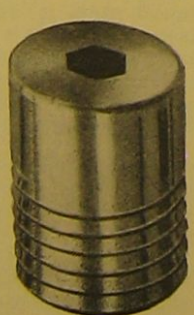


Fig. 1021-6

These illustrations show some of the Special Filister and other styles in which "Unbrako" Hollow Head Screws can be supplied. Prices will be given on receipt of your requirements

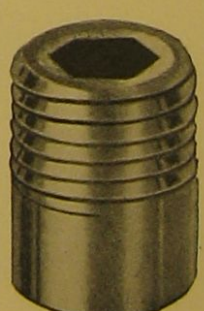


Fig. 1021-1

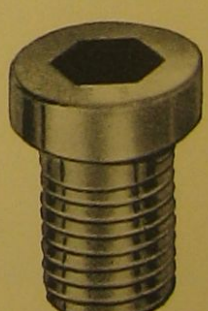
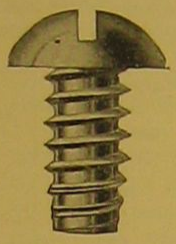


Fig. 1021-2

Fig. 1026-7

HARDENED SELF-TAPPING SCREWS

G.K.N.-Parker Kalon Hardened Self-Tapping Sheet Metal Screws, Type Z (British Made)



C'SUNK HEAD

ROUND HEAD

RAISED HEAD

BINDING HEAD

MUSH. HEAD

These screws offer the simplest, cheapest and most effective means of joining sheet metal or making fastenings to sheet metal from 28 gauge (·016 in.) to No. 6 gauge (·198 inch).

The unique threads and special hardening treatment enable these screws to cut their own thread in the material and eliminate costly tapping operations with the consequent speeding up of production.

Type Z Screws make better, stronger fastenings than those with machine screws, nuts, rivets and bolts, etc., and they are simply turned with a screwdriver into holes drilled, pierced, or moulded to the proper size.

Regularly made, five types of head as illustrated, in plain steel finish but nickel-plated, brassed, coppered, cadmium and electro-galvanised finishes and special screws can be supplied at extra cost.

Size Lgth. Ins.	Diam. No.	Style of Heads Available*	Plain Steel Finish Price per 1,000	Price per Gross
3/16	× 2	C.R.O.B.	16/-	2/4
1/4	× 2	C.R.O.B.	16/9	2/5
5/16	× 2	C.R.O.B.	17/6	2/6
3/8	× 2	C.R.O.B.	18/-	2/7
3/16	× 4	C.R.O.B.	17/3	2/6
1/4	× 4	C.R.O.B.	18/-	2/7
5/16	× 4	C.R.O.B.	18/9	2/8
3/8	× 4	C.R.O.B.	18/9	2/8
1/2	× 4	C.R.O.B.	19/9	2/10
5/8	× 4	C.R.O.B.	20/6	2/11
3/4	× 4	C.R.O.B.	21/-	3/-
3/16	× 6	R. B.M.	20/3	2/11
1/4	× 6	C.R.O.B.M.	21/3	3/1
5/16	× 6	C.R.O.B.M.	22/-	3/2
3/8	× 6	C.R.O.B.M.	22/-	3/2
1/2	× 6	C.R.O.B.	22/9	3/3
5/8	× 6	C.R.O.B.	23/9	3/5
3/4	× 6	C.R.O.B.	24/6	3/6
7/8	× 6	C.R.O.B.	25/-	3/7
1	× 6	C.R.O.B.	25/9	3/9
1/4	× 7	R. B.	22/-	3/2
5/16	× 7	C.R.O.B.	22/9	3/3
3/8	× 7	C.R.O.B.	23/-	3/4
1/2	× 7	C.R.O.B.	23/9	3/5
5/8	× 7	C.R.O.B.	24/6	3/6
3/4	× 7	C.R.O.B.	25/6	3/8
7/8	× 7	C.R.O.B.	26/3	3/9
1	× 7	C.R.O.B.	27/-	3/11
1/4	× 8	R. B.M.	23/-	3/4
5/16	× 8	C.R.O.B.M.	24/-	3/6
3/8	× 8	C.R.O.B.M.	24/3	3/6
1/2	× 8	C.R.O.B.M.	25/6	3/8
5/8	× 8	C.R.O.B.M.	26/9	3/10
3/4	× 8	C.R.O.B.	28/-	4/-
7/8	× 8	C.R.O.B.	29/3	4/3
1	× 8	C.R.O.B.	30/6	4/5
1 1/4	× 8	C.R.O.	33/-	4/9
1 1/2	× 8	C.R.O.	35/6	5/1
1/4	× 10	R. B.M.	26/6	3/10
5/16	× 10	C.R.O.B.M.	27/6	3/11
3/8	× 10	C.R.O.B.M.	28/-	4/-
1/2	× 10	C.R.O.B.M.	29/9	4/3
5/8	× 10	C.R.O.B.M.	31/6	4/6
3/4	× 10	C.R.O.B.	33/3	4/10
7/8	× 10	C.R.O.B.	34/9	5/-
1	× 10	C.R.O.B.	36/6	5/3
1 1/4	× 10	C.R.O.	39/9	5/9
1 1/2	× 10	C.R.O.	43/-	6/2
1 3/4	× 10	C.R.O.	46/6	6/8
2	× 10	C.R.O.	49/9	7/2
3/8	× 12	R. B.	28/3	4/1
1/2	× 12	C.R.O.B.	30/-	4/4
5/8	× 12	C.R.O.B.	31/9	4/7
3/4	× 12	C.R.O.B.	33/3	4/10
7/8	× 12	C.R.O.B.	35/-	5/-
1	× 12	C.R.O.B.	36/9	5/4
1 1/4	× 12	C.R.O.	40/3	5/10
1 1/2	× 12	C.R.O.	43/9	6/4
3/8	× 14	R. B.M.	31/-	4/6
1/2	× 14	C.R.O.B.M.	33/-	4/9
5/8	× 14	C.R.O.B.M.	35/-	5/-
3/4	× 14	C.R.O.B.	37/3	5/4
7/8	× 14	C.R.O.B.	39/3	5/8
1	× 14	C.R.O.B.	41/3	5/11
1 1/4	× 14	C.R.O.	45/6	6/7
1 1/2	× 14	C.R.O.	49/9	7/2
1 3/4	× 14	C.R.O.	54/3	7/10
2	× 14	C.R.O.	59/-	8/6

***Styles of Heads:** C=Countersunk. R=Round Head. O=Raised Head. B=Binding Head. M=Mushroom Head.

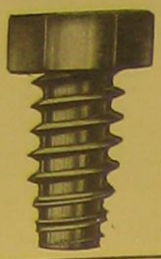
Stainless Steel or Monel Metal Self-Tapping Sheet Metal Screw, Type Z

Type Z Screws may be had in stainless steel or monel metal with either Round Heads or Raised Heads in the following range of sizes:—

Size, diam. and length ...	No. 4 × 1/4	No. 6 × 3/8	No. 8 × 3/8	No. 8 × 1/2	No. 10 × 1/2	No. 10 × 5/8	No. 14 × 5/8
Price, per gross ...	10/6	12/9	14/-	14/9	17/-	18/-	30/-

SELF-TAPPING AND SHEET METAL SCREWS

G.K.N.-Parker Kalon



Hexagon Head Hardened Self-Tapping Cap Screws, Type Z (British Made)

These Hexagon Head Type Z Screws, like the other shapes shown, **eliminate tapping** — they form their own thread in the material as they are driven in.
They are for making secure fastenings in sheet metal assemblies from No. 24 gauge (·025 inch) up to No. 6 gauge (·198 inch). In steel plate and structural shapes up to ½ inch thick and to solid sections of aluminium, die-castings, brass, bronze, ebony asbestos and casein compositions, etc.
Regularly supplied in plain steel finish. Other plated finishes and special sizes can be supplied at extra cost.

Size Length Ins.	Size Diam. No.	Plain Steel Colour Price per 1,000	Plain Steel Colour Price per Gross
3/16	6	20/3	2/11
1/4	6	21/3	3/1
5/16	6	22/-	3/2
3/8	6	22/9	3/3
1/4	8	23/-	3/4
5/16	8	24/3	3/6
3/8	8	25/6	3/8
7/16	8	26/9	3/10
1/2	8	28/-	4/-
9/16	8	29/3	4/3
5/8	8	30/6	4/5
5/16	10	28/-	4/-
3/8	10	29/9	4/3
7/16	10	31/6	4/6
1/2	10	33/3	4/10
9/16	10	34/9	5/-
5/8	10	36/6	5/3
3/8	14	31/-	4/6
7/16	14	33/-	4/9
1/2	14	35/-	5/-

Size Length Ins.	Size Diam. Ins.	Plain Steel Colour Price per 1,000	Plain Steel Colour Price per Gross
3/4	No. 14	37/3	5/4
7/8	,, 14	39/3	5/8
1	,, 14	41/3	5/11
1 1/8	,, 14	43/6	6/3
1 1/4	,, 14	45/6	6/7
1 3/8	,, 14	47/6	6/10
1 1/2	,, 14	49/9	7/2
1/2	5/16	—	8/6
5/8	5/16	—	9/-
3/4	5/16	—	9/6
7/8	5/16	—	10/-
1	5/16	—	10/6
1 1/4	5/16	—	11/6
1 1/2	5/16	—	12/6
5/8	3/8	—	16/-
3/4	3/8	—	16/6
7/8	3/8	—	17/-
1	3/8	—	17/6
1 1/4	3/8	—	18/9
1 1/2	3/8	—	20/-

Size Length Ins.	Size Diam. Ins.	Price per Gross
1 3/4	3/8	21/-
2	3/8	22/3
3/4	7/16	17/-
7/8	7/16	18/3
1	7/16	19/6
1 1/4	7/16	21/9
1 1/2	7/16	24/-
1 3/4	7/16	26/6
2	7/16	28/9
3/4	1/2	25/3
7/8	1/2	26/6
1	1/2	27/6
1 1/4	1/2	30/-
1 1/2	1/2	32/3
1 3/4	1/2	34/6
2	1/2	37/-
2 1/4	1/2	39/3
2 1/2	1/2	41/9
—	—	—
—	—	—

Hardened Self-Tapping Sheet Metal Screws, Type "A" (British Made)

Threads do not strip—Heads do not twist off

C'sunk Head. Round Head. Raised Head. Binding Head. Mush. Head.

These Screws are intended only for use in light gauge metal, up to 18 gauge (·050 in. thick).
Like the Type Z Screws these also are threaded and hardened and form their own thread in the material into which they are turned with a screwdriver, the hole to receive the screw having previously been drilled or punched to the proper size. A perfectly secure fastening is made with these screws.

Standard Finishes—Plain steel in Five Head Styles as illustrated. Various plated finishes can be supplied at extra cost.

Size Length Ins.	Size Diam. No.	Style of Heads Available *	Plain Steel Finish Price per 1,000	Plain Steel Finish Price per Gross
1/4	4	C.R.O.B.	14/-	2/-
5/16	4	C.R.O.B.	14/6	2/1
3/8	4	C.R.O.B.	15/3	2/2
7/16	4	C.R.O.B.	15/9	2/3
1/2	4	C.R.O.B.	16/3	2/4
1/4	6	C.R.O.B.M.	14/6	2/1
5/16	6	C.R.O.B.M.	15/3	2/2
3/8	6	C.R.O.B.M.	15/9	2/3
7/16	6	C.R.O.B.	16/3	2/4
1/2	6	C.R.O.B.	17/-	2/5
9/16	6	C.R.O.B.	17/6	2/6
5/8	6	C.R.O.B.	18/-	2/7
3/8	7	C.R.O.B.	15/9	2/3
1/2	7	C.R.O.B.	16/3	2/4
9/16	7	C.R.O.B.	17/-	2/5
3/4	7	C.R.O.B.	17/6	2/6
7/8	7	C.R.O.B.	18/-	2/7
1	7	C.R.O.B.	18/9	2/8
3/8	8	C.R.O.B.M.	17/-	2/5
1/2	8	C.R.O.B.M.	18/-	2/7
9/16	8	C.R.O.B.M.	19/3	2/9
3/4	8	C.R.O.B.M.	20/6	2/11
7/8	8	C.R.O.B.	21/6	3/1
1	8	C.R.O.B.	22/9	3/3
1 1/4	8	C.R.O.B.	25/-	3/7
1 1/2	8	C.R.O.B.	27/6	3/11
3/8	10	C.R.O.B.M.	19/9	2/10
1/2	10	C.R.O.B.M.	21/-	3/-
9/16	10	C.R.O.B.M.	22/3	3/2
3/4	10	C.R.O.B.M.	23/3	3/4
7/8	10	C.R.O.B.	24/6	3/6
1	10	C.R.O.B.	25/9	3/9
1 1/4	10	C.R.O.	28/-	4/-
1 1/2	10	C.R.O.	30/3	4/4
1 3/4	10	C.R.O.	32/9	4/9
2	10	C.R.O.	35/-	5/-
1/2	12	C.R.O.B.	22/3	3/2
5/8	12	C.R.O.B.	23/3	3/4
3/4	12	C.R.O.B.	24/6	3/6
7/8	12	C.R.O.B.	25/9	3/9
1	12	C.R.O.B.	26/9	3/10
1 1/4	12	C.R.O.	29/3	4/3
1 1/2	12	C.R.O.	31/6	4/6
1/2	14	C.R.O.B.	22/9	3/3
5/8	14	C.R.O.B.	24/6	3/6
3/4	14	C.R.O.B.	26/3	3/9
7/8	14	C.R.O.B.	28/-	4/-
1	14	C.R.O.B.	29/9	4/3
1 1/4	14	C.R.O.	33/3	4/10
1 1/2	14	C.R.O.	36/9	5/4
1 3/4	14	C.R.O.	40/3	5/10
2	14	C.R.O.	43/9	6/4

***Styles of Heads:** C=Countersunk Head. R=Round Head. O=Raised Head. B=Binding Head. M=Mushroom Head.

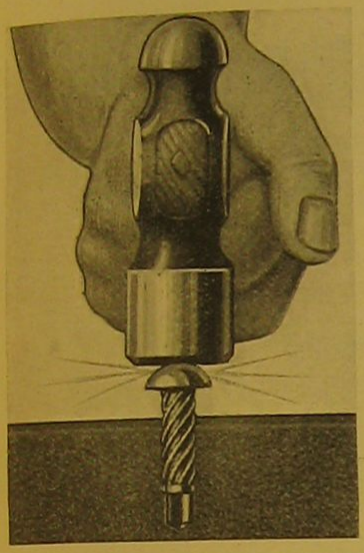
"Comet" Stop Punches

These one-piece Stop Punches for piercing holes for **sheet metal screws** are furnished in six sizes:—Nos. 6, 7, 8, 10, 12 and 14, for making holes for screws of corresponding diameters. **Price ... 2/6 each**

HARDENED DRIVE SCREWS, SCREWNAILS, Etc.

G.K.N.-Parker Kalon

Hardened Hammer Drive Screws, Type "U" (British Made)



"Hammer Them Home"

These metallic Drive Screws are for making permanent fastenings. **They eliminate tapping, and cut their own thread in the material** as they are hammered or forced in.

There are hundreds of applications for these time and labour-saving screws. They range from attaching name plates to the assembly of parts where strength and security of the fastening is essential, and leading concerns have standardised on the Type "U" Drive Screws.

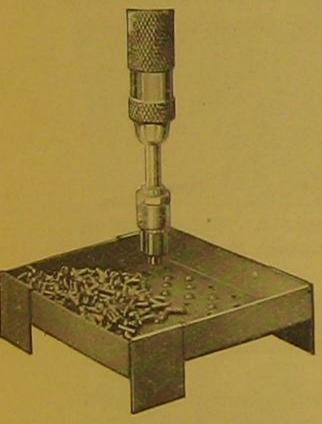
Parker Drive Screws are easy to use. Just hammered into a hole of proper size and a perfect fastening results.

Round Head Screws are standard stock, but other shaped heads and special lengths can be quoted against requirements.

Standard Finishes.—Nos. 00 to 6, Brass Plated; Nos. 7 to 14, Plain Steel. Other plated finishes can be supplied at extra cost.

Sizes and Prices. Supplied in boxes of 1000 only.

Screw Size No.	Length of Screw In.	Diam. Hole Required In.	Use Drill No.	Price per 1,000	Screw Size No.	Length of Screw In.	Diam. Hole Required In.	Use Drill No.	Price per 1,000
00	⅛ ⅜ ¼	·052	55	10/-	7	⅜ ½ ¾	·136	29	16/-, 16/9, 17/3
0	⅛ ⅜ ¼	·067	51	10/-	8	⅜ ½ ¾	·144	27	20/9, 21/9, 22/6
2	⅛ ⅜ ¼	·086	44	10/-	10	⅜ ½ ¾	·161	20	23/9, 24/9, 26/-
4	⅜ ¼ ⅜	·104	37	11/6, 12/-, 12/6	12	¼ ⅜ ½	·191	11	26/3, 27/6, 28/6
6	¼ ⅜ ½	·120	31	13/9, 14/3, 14/9	14	¼ ⅜ ½	·221	2	32/3, 33/9, 35/3



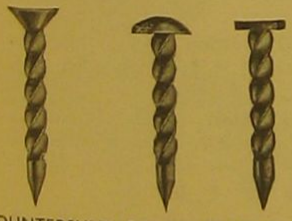
Magnetic Drivers

For Type U Hammer Drive Screws, Nos. 0 and 00

Operating on the same principle as an automatic centre punch, these Drivers by means of a magnetic mandrel suitably cupped and sleeved pick up and drive sizes "O" and "OO" Type "U" Hardened Metallic Drive Screws.

The carefully designed tray enables operators swiftly to present the heads of the screws. The non-magnetic sleeve makes individual screw selection possible.

Price of Magnetic Driver with one brass tray ...	£1 1 0	each
,, ,, Magnetic Driver only without tray	19 3	,,
,, ,, Tray only	1 9	,,



COUNTERSUNK FLAT HEAD — ROUND HEAD — PLAIN FLAT HEAD

Hardened Screwnails

These are made especially for fastening securely sheet metal to wood.

They cannot work loose, or pull out, because the hardened spiral thread cuts into the burr formed in the metal, and then worms its way into the wood.

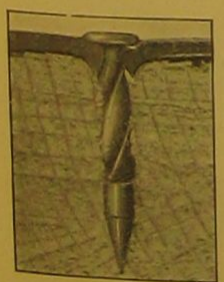
Hardened Screwnails are used to advantage by:—Sheet metal workers, refrigerator, automobile and aircraft manufacturers, sign builders, railways, etc.

Regularly supplied in sizes and finishes listed below. Other plated finishes and special sizes can be furnished at extra cost.

SUPPLIED IN BOXES OF 1,000 ONLY

Size Length Diam. Ins. No.	Decimal Equiv. of Gauge No.	Style of Head Available*	Price per 1,000 Plain Steel	Price per 1,000 Cadmium Plated	Size Length Diam. Ins. No.	Decimal Equiv. of Gauge No.	Style of Head Available*	Price per 1,000 Plain Steel	Price per 1,000 Cadmium Plated
⅜ × 15	·072	C.R.F.	7/6	9/3	⅜ × 13	·091	F.	9/3	11/-
½ × 14	·080	R.	7/6	9/3	1 × 13	·091	C.	10/6	13/-
½ × 14	·080	C.R.	8/3	10/-	1 × 13	·091	Large R'nd	14/6	18/-
½ × 14	·080	C.R.	10/-	12/3	¾ × 12	·105	F.	10/-	12/3
1 × 14	·080	C.	11/9	14/3	1 × 12	·105	F.	11/3	13/9
1¼ × 14	·080	C.	13/3	16/6	1¼ × 11	·120	F.	16/9	20/3
1½ × 14	·080		7/6	9/3	1½ × 11	·120	F.	20/9	25/3
½ × 13	·091	R.	8/3	10/-	1¾ × 10	·135	F.	26/3	32/-
¾ × 13	·091	R.	8/3	10/-	2 × 10	·135	F.	30/-	36/9
¼ × 13	·091	C. F.							

Styles of Heads:* C = Countersunk Head. R = Round Head. F = Flat Head.



HARDENED SCREWNAIL FASTENING. SHOWING HOW THE METAL SHEET BITES INTO THE WOOD

Screwnail Punches

Made in four sizes:—Nos. 13, 12, 11, and 10 for punching holes for corresponding gauges of screwnails. **Price on application.**

A Plain or prick punch can be supplied if preferred. **Price on application.**

G.K.N.-Parker Kalon

Assortments of Self-Tapping Screws (British Made)

Assortment No. 12

Containing 5 gross of the most popular sizes of Type "Z" self-tapping and Type "U" Drive Screws used in the engineering, sheet metal and radio trades. Each tin contains the following selection:—

Type "Z" Hardened Self-Tapping Screws.

C/sunk Heads. $\frac{1}{4}$" × No. 4, $\frac{1}{4}$ gross: $\frac{3}{8}$" × No. 6, $\frac{1}{2}$ gross: 1" × No. 8, $\frac{1}{8}$ gross.
Round Heads. $\frac{1}{4}$" × No. 4, $\frac{1}{4}$ gross: $\frac{3}{8}$" × No. 6. $\frac{1}{2}$ gross: $\frac{1}{2}$" × No. 10, $\frac{1}{4}$ gross.
Binding Heads. 1" × No. 8, $\frac{1}{8}$ gross.

Type "U" Hardened Hammer Drive Screws.

$\frac{1}{8}$" × No. 0: $\frac{3}{16}$" × No. 2: $\frac{5}{16}$" × No. 4: $\frac{1}{4}$" × No. 6: $\frac{3}{8}$" × No. 10. $\frac{1}{2}$ gross of each size.

Price, Plain Steel Finish ... ... 18/6 per box.

Assortment No. 13

No. 13

The No. 13 assortment comprises 6 gross Type "A" Hardened Self-Tapping Screws, designed for those whose requirements do not necessitate the larger No. 30 assortment.

Each box contains the following selection:—

Style of Head.	**C/sk. and Binding**	**C/sk and Round**	**Raised and Binding**	**C/sk and Round**
Size, length × diam.	$\frac{3}{8}$" × No. 4	$\frac{3}{8}$" × No. 6	$\frac{1}{2}$" × No. 6	$\frac{5}{8}$" × No. 6
Quantity, each size	$\frac{1}{2}$ gross each	$\frac{1}{2}$ gross each	$\frac{1}{2}$ gross each	$\frac{1}{2}$ gross each

Style of Head.	**Raised**	**C/sunk**	**C/sunk**	**Binding**	**Raised.**
Size, length × diam.	$\frac{1}{4}$" × No. 6	$\frac{1}{4}$" × No. 8	1" × No. 8	$\frac{1}{2}$" × No. 10	1" × No. 10
Quantity, each size	$\frac{1}{2}$ gross	$\frac{1}{2}$ gross	$\frac{1}{2}$ gross	$\frac{1}{4}$ gross	$\frac{1}{4}$ gross

Price, Plain Steel Finish ... ... £1 1 0 per box

Assortment No. 30

No. 30

Consisting of 13 gross of screws:—8 gross Type "A" Self-Tapping Screws: nickel-plated finish and 5 gross Hardened Screw Nails in a steel cabinet.

This convenient assortment has been prepared especially for automobile body builders, trim and repair shops. It has 24 sizes of sheet metal screws and 6 sizes of screwnails in most general use, and each contained in a separate compartment.

A reference chart giving instructions, drill size recommendations and other information is contained in the black enamelled steel cabinet which holds the following:—

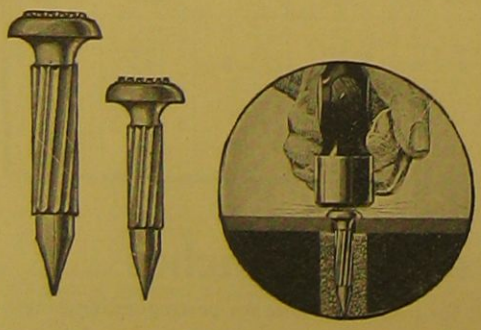
A total number of **1152 Binding Head and Raised Head, Nickel-plated Type "A" Sheet Metal Screws,** Sizes, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ inch × No. 6: $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 inch × No. 8: $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, × No. 10.

And **720 Hardened Screwnails, plain steel finish,** sizes, $\frac{3}{4}$" × No. 15 Flat Head; $\frac{7}{8}$" × No. 13 Flat Head; 1" × No. 13 Large Rd. Head; $\frac{3}{4}$" × No. 15 C/sunk Head; 1" × No. 14 C/sunk Head: $1\frac{1}{4}$" × No. 14 C/sunk Head.

Price ... ... Complete £2 1 0

The above assortments can be had with screws in other plated finishes. Prices on application.

Hardened Masonry Nails



Parker Masonry Nails offer a simple, inexpensive, yet thoroughly satisfactory means of making fastenings to brick, concrete, and other masonry.

The use of the unique nails is easier, quicker, and cheaper than employing expansion bolts, lead anchors, and plugs, hooks, spikes, and similar devices now being used for the purpose.

Standard finish is cadmium plated. Other plated finishes can be supplied at extra cost. Packed in boxes containing one gross of a size. Round heads only are stocked.

Price, per 1 gross Nails.

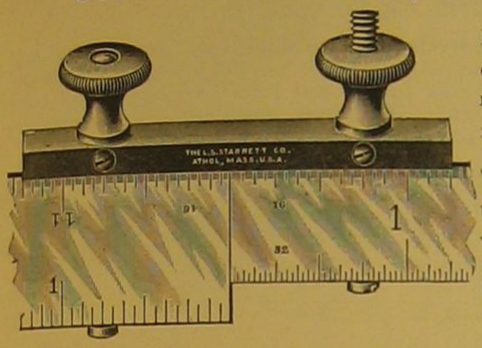
Sizes, ins.	$\frac{5}{32}$ × 1	$\frac{3}{16}$ × 1$\frac{1}{4}$	$\frac{1}{4}$ × 1$\frac{1}{2}$	$\frac{1}{4}$ × 2	$\frac{1}{4}$ × 2$\frac{1}{2}$
Price, per gross ...	**6/3**	**8/–**	**11/6**	**14/6**	**17/6**

An inexpensive one-piece Drill Punch of high-grade steel is made especially for drilling starting holes for the nails in concrete, brick, etc., and will give long service.

Made in three sizes, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{1}{4}$ **in. Price on application.**

CLAMPS, TROWELS, WASHER CUTTERS, Etc.

Starrett Rule Clamps, No. 299

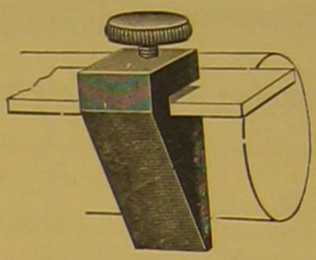


For clamping together, end to end, two steel rules, making one long rule.

The rules may be of the same or different widths up to 1¼ inches.

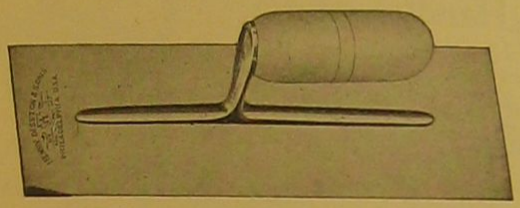
Price ... 3/6 each

Starrett Keyseat Clamps, No. 298 (Made in U.S.A.)



For using any common steel scale as a key-seat rule.
Made from case-hardened steel, ground.
They can be put on or off in a moment, and form a complete substitute for a more costly tool.

Price 4/3 per pair



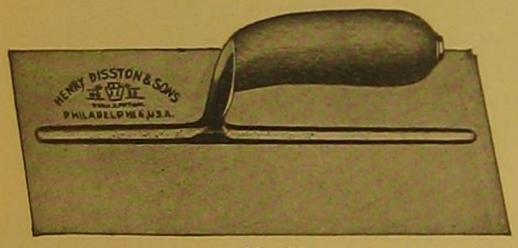
STYLE OF **Nos. 1, 2** and "STANDARD" WITH SINGLE TANG

Disston Plastering Trowels (Made in U.S.A.)

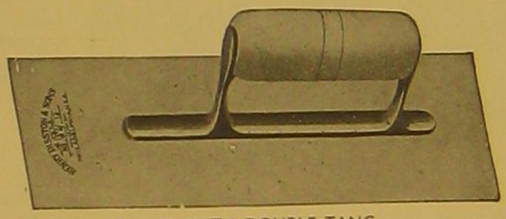
Single or Double Tang

The blades of these Trowels are made of the best quality crucible steel.
Handles adjusted by an improved method, strong, durable, and easy to the hand.
Blades are ground tapering from the centre to the edges on the working side.
No. 16 Trowel has the advantage of an extra long tang, which is **secured by seven rivets.** No. 118 has extra long tang and leather grip. No. 38 has specially shaped and formed handle.

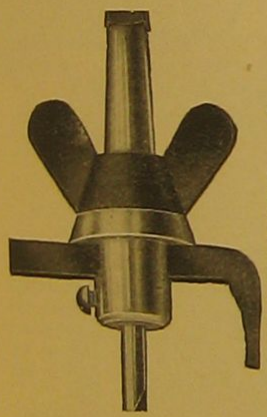
			(No. 150)				
Nos. ...	**1**	**2**	**"Standard"**	**12**	**16**	**118**	**38**
Size length	11	11	11	11	11	11	11 ins.
Price ...	**7/9**	**6/6**	**4/3**	**7/3**	**9/9**	**14/–**	**11/3 each**



No. 38



No. 12 WITH DOUBLE TANG



COMET Tank Cutter

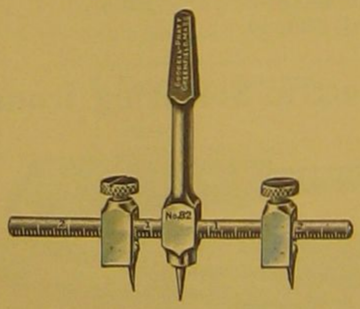
(British Made)

Wrought Steel Body. Cast Steel Cutter and Twist Drill, for cutting holes in sheet metal.

Capacity 3 inches.

Price ... 4/3 each

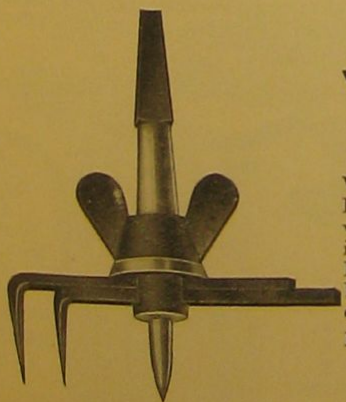
Goodell Washer Cutter, No. 82 (Made in U.S.A.)



Hardened and tempered tool steel cutter and point. Heavy graduated steel beam flattened on top to give a good bearing for the knurled set screws. Hardened square bit brace shank.

No. 82. Capacity ⅝ to 6 ins.

Price ... ... 9/6 each



COMET Washer Cutter

(British Made)

Wrought Steel Body. Will cut washers up to 5½ inches diam. For Leather, Fibre, Rubber, Asbestos, etc.

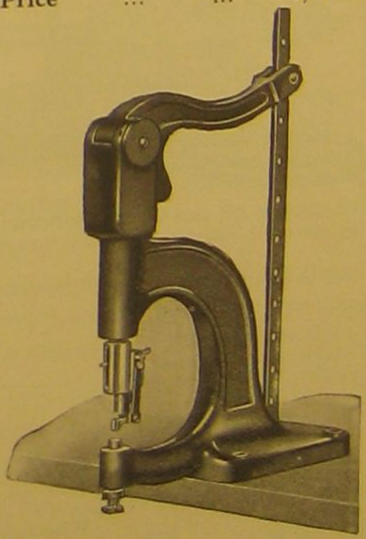
Price ... 3/6 each

"Excelsior" Rivet Setting Machines

(British Made)

Down-Drive, Hand-Feed, Foot-operated.

No.	**1**	**2**	**3**	**4**
Admits in Gap, ins.	4½	5½	12	12
Approx. weight, lbs.	35	50	86	100
Price, each	**£4 4 0**	**£5 12 6**	**£7**	**£8 8 0**



SOLDERING IRONS

Comet Copper Soldering Irons (British Made)

These Soldering Irons are manufactured from rolled and drawn best refined electrolytic bar. **The bits are guaranteed** 99·9% pure copper and have an electrolytical conductivity of 100%. **Polished handles,** with iron ferrule. The smaller sizes are round in section.

Soldering Iron (Weight of Bits) Polished, Ferruled Handles

Size by weight of bit	¼	½	¾	1	1¼	1½	2	lbs.
Price	1/4	1/11	2/7	3/3	4/–	4/9	5/9	each

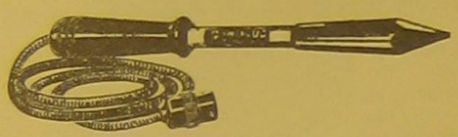
Soldering Irons with Whitewood Handles.

Size by weight of complete tool	¼	½	¾	1	1¼	1½	1¾	2	lbs.
Price	11d.	1/2	1/6	1/10	2/2	2/6	3/–	3/6	each

" Shur-Grip" Soldering Iron Handles (Made in U.S.A.)

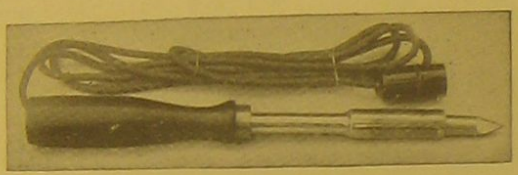
No. 7. For stem dia. ⅜ – ½", Weight Irons, lbs. 1½ – 4, **Price, per doz. 21/–**
,, 8. ,, ,, ,, 7/16 – 9/16, ,, ,, ,, 4 – 8, ,, ,, ,, **21/–**
,, 9. ,, ,, ,, ⅝ – ¾, ,, ,, ,, 8 –12, ,, ,, ,, **21/–**

Rawlplug Electric Soldering Irons (British Made)



This Iron operating on A.C. or D.C. can be plugged into any lamp socket. **The bit supplied already tinned** is pointed and weighs 6 ozs. **Parts are replaceable** and an even flow of heat to the tip is ensured because there are no threads in the heat conducting part.
Length, 12 ins. Weight complete, without flex, 12 ozs.
Consumption 80 watts. Voltages 100/110; 200/220; 230/250.
Price with 6 ft. of flex and connector ... ... 8/6 each

"Midget" and "Minor" Electric Soldering Irons (British Made)



Light-weight Electric Soldering Irons in which various shaped copper bits can be used are supplied in two sizes:—

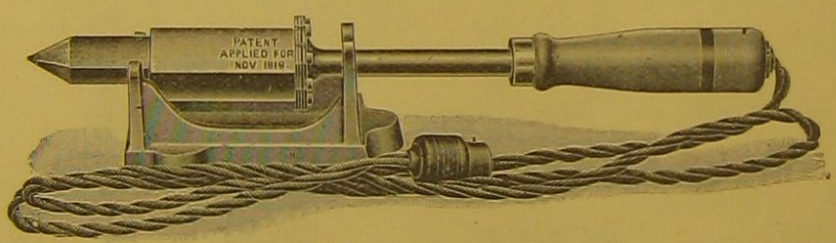
"Midget."—Weight, 7 ozs. consumption, 45 watts. Voltages 100/110, 200/220, 230/250 A.C. or D.C.
Price ... ... 10/– each

"Minor"—Weight, 16 ozs.; consumption, 75 watts. Voltages 100/110, 200/220, 230/250 A.C. or D.C.
Price ... ... 15/– each

Both types supplied complete with pointed or chisel bit, 2 yards of flex and adaptor or 3 core flex for earthing.

	"Midget"	"Minor"	
Spare Parts, Extra Copper Bits, Pointed or Chisel Shaped	1/3	3/–	each
,, ,, ,, ,, ,, Angle Shaped	1/6	4/–	,,
,, ,, ,, ,, ,, Pencil Shaped	—	2/3	,,
,, ,, ,, Heating Elements	2/9	5/–	,,

Electric Soldering Irons (British Made)



The heating elements are made up upon solid formers, and no crossings appear in the windings. They are entirely separate from the copper bit, and are protected by mica sections from any pressure of the bit due to expansion.
There are no screws in the heat-conducting portion, and the danger of threads becoming scaled and preventing the free flow of heat to the point is effectually remedied.

The copper bit can be easily removed without disturbing the windings.
The standard voltages which can be supplied are 100 volts to 250 volts, but special voltages can be furnished at a slight extra cost.
Type E.I. 1 is only suitable for instrument or very light work. Adaptors can be supplied at extra cost.

Sizes and Prices

Type	E.I. 1.	E.I. 2	E.I. 3.	E.I. 4.	
Length of Copper Bit	1¾	2	2½	—	ins.
Total length	13½	15½	17	17½	,,
Weight	1	1¾	2½	3¼	lbs.
Current Consumption	100	175	350	—	watts
Price, complete with 2 yards of flex	£1 5 0	£1 15 0	£2 2 6	£2 12 6	
,, **Stand**	0 4 0	0 4 0	0 4 0	0 4 0	
,, **Extra Copper Bits, Hatchet Shaped**	0 4 6	0 7 6	0 9 0	0 15 0	each
,, ,, ,, **Pointed or Chisel Shaped**	0 2 6	0 4 6	0 7 6	0 12 6	,,
,, ,, **Heating Elements**	0 7 6	0 10 0	0 12 6	0 15 0	,,

When ordering, state voltage and whether stand required.

BLOW LAMPS

No. 3

Original "Swedish" Standard Patterns (Foreign)

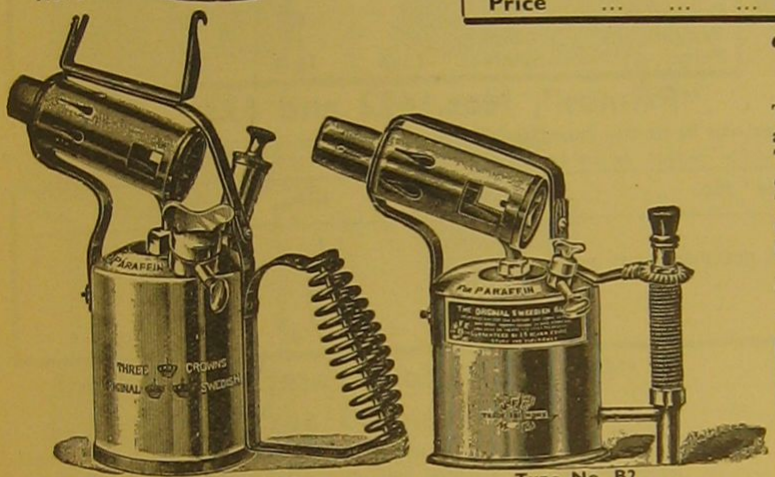
For Benzoline or Petrol

These Lamps are of the oldest and best-known patterns, of exceptional solidity and first-grade Swedish quality throughout, and are in favour with painters, plumbers, electricians, tinsmiths, etc.

They are supplied with a box of complete spare parts.

No. 5 Lamp is similar to No. 3, but has horizontal burner jet and wooden handle.

Type, Swedish No.	1	3	5
Capacity ... ... pint	½	½	½
Burns at one filling ... hours	1¼	1½	1½
Price ... ... **each**	8/3	10/6	10/6



Type Nos. C1 and C2 — Type No. B2

"Excelsior" Patterns C & B

For Paraffin

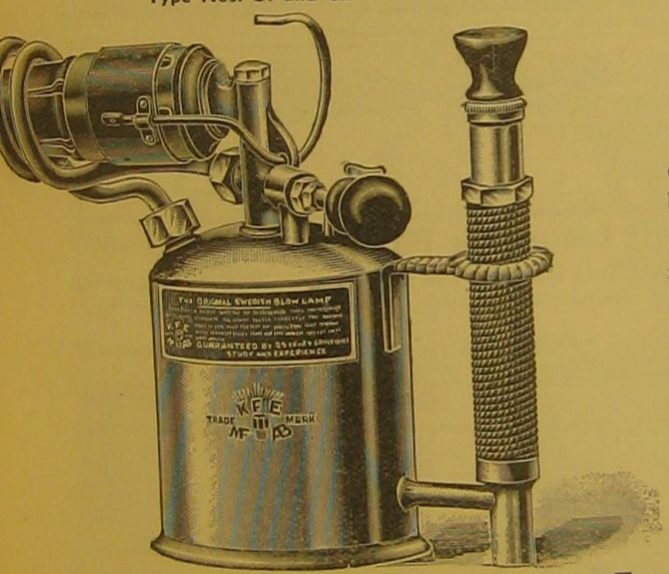
These types burn ordinary paraffin, without wick, and give a powerful flame.

They burn in any position and are suitable for either indoor or outdoor use.

Type C Lamps are provided with a special device for holding a soldering iron while heating.

An improved **coil steel handle is also fitted.** This gives a comfortable grip and remains cool while the lamp is in use.

Type, Excelsior No.	C1	C2	C7	B1	B2
Capacity ... pints	2	1	⅝	2	1
Burns at one filling ... hours	3	1½	1½	3	1½
Price ... ... **each**	14/3	11/9	10/3	16/3	13/9



"Swedish" Brazing Lamps (Foreign)

For Benzoline or Petrol

These larger and more powerful Lamps produce a particularly clean and intense flame, and are most suitable for all classes of brazing.

They are extensively used in garages for straightening bent motor car axles (without dismounting the axle), and for all railway, shipyard, and engineering purposes, etc.

Type, Swedish No.	15	20
Capacity ... ... pints	1½	2
Burns at one filling ... hours	¾	1¼
Length of Flame ... ... ins.	9	9
Height ... ... ,,	8½	8¾
Weight ... ... lbs.	3½	3¾
Price ... ... **each**	22/-	23/6

Type P15

"Excelsior" Pattern Brazing Lamps (Foreign)

For Paraffin

These patterns develop exceptional power.

Nos. 16 and 17 are fitted with an extra regulator at foot of pump, thus allowing flame to be shut off whilst pressure is maintained in the container.

Pressure gauges can be fitted at extra cost, if required.

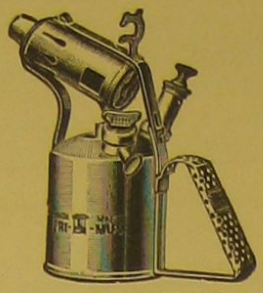
Type, Excelsior No.	P 15	P 16	P 17
Capacity ... ... pints	2½	4	6
Burns at one filling ... hours	1	1	1½
Length of Flame ... ... ins.	9½	15½	16
Height ... ... ,,	9¾	10⅞	14¾
Weight ... ... lbs.	4	7¾	8¾
Price ... ... **each**	25/-	40/-	47/6

BLOW LAMPS AND STOVES

Genuine "Primus" Blow Lamps for Paraffin (Foreign)

"Aetna" Series, Nos. 630 to 633

No. 630. "AETNA"

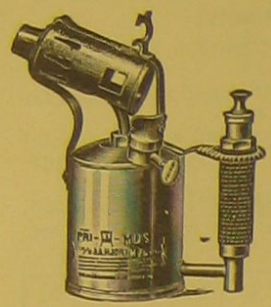


No. 632. "AETNA"

These Blowlamps are the original "Aetna" pattern, are not affected by wind or rain and burn in practically any position. They are very popular with plumbers, painters, etc.
The No. 632, 1 pint size will give a 10 inch flame at 3000° Fahr.

Type "Aetna" No. ...	630	631 Folding Handle	632	633
Capacity ... pints	$\frac{5}{8}$	$\frac{5}{8}$	1	$1\frac{3}{4}$
Burns at 20 lbs. pressure pints per hour ...	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{3}{4}$
Full Height ... ins.	$6\frac{1}{2}$	$6\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$
Weight ... ... lbs.	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{3}{4}$
Price ... ... each	**12/3**	**12/9**	**15/-**	**17/-**

"Primus", Nos. 622 and 623



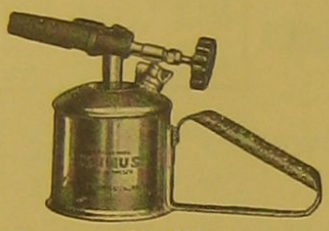
No. 622

In this type **the pump is in the handle,** and the general construction although otherwise identical with "Aetna" series is for heavier service.

Type "Primus" No.	622	623
Capacity ... ... pints	1	$1\frac{1}{4}$
Burns at 30 lbs. pressure, pints per hour ...	$\frac{3}{4}$	$\frac{3}{4}$
Full Height ... ... ins.	$8\frac{1}{2}$	$8\frac{1}{2}$
Weight ... ... lbs.	$2\frac{1}{4}$	$2\frac{3}{4}$
Price ... ... each	**17/6**	**19/6**

"Primus" Blow Lamps for Petrol, Nos. 803 and 804

No. 803

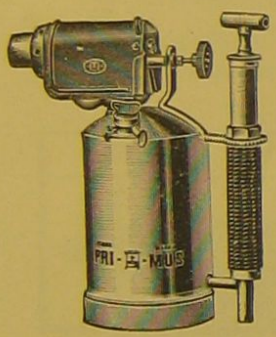


No. 804

The burners of this type are provided with facilities **for self-pricking of the nipple and easy regulation of the flame.**
These lamps operate on petrol have quickly detachable flame tubes and tanks of robust construction.

Type "Primus" Petrol, No. ...	803	804
Capacity ... ... pints	$\frac{1}{2}$	$\frac{3}{4}$
Consumption per hour ... ,,	$\frac{3}{8}$	$\frac{3}{8}$
Height ... ... ins.	$5\frac{1}{8}$	$5\frac{1}{2}$
Weight ... ... lbs.	$\frac{13}{16}$	$1\frac{7}{16}$
Price ... ... each	**11/-**	**13/-**

"Tarantella" Series Brazing Lamps for Paraffin, Nos. 605—607

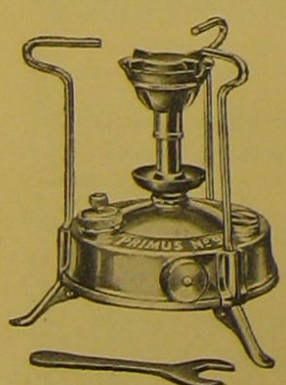


For all types of brazing, heating, etc. They have a special tube burner with large vapourizing area and accessible spirit cup. The draught hood enables the lamp to be easily lit even in rough weather.
Fitted direct into the gas channel is a regulating valve screw by which the flame may be lowered or extinguished whilst maintaining the air pressure in tank.

Type "Tarantella" No.	605	606	607
Paraffin Capacity ... ... pints	$2\frac{1}{2}$	$3\frac{1}{2}$	$5\frac{1}{4}$
Burns at 60 lbs. pressure pints per hour ...	$3\frac{1}{4}$	$3\frac{1}{4}$	$5\frac{1}{4}$
Full Height ... ... ins.	$10\frac{1}{2}$	$11\frac{3}{4}$	$14\frac{1}{2}$
Weight ... ... lbs.	4	$5\frac{1}{4}$	$7\frac{1}{2}$
Price ... ... each	**31/-**	**39/-**	**54/-**

Genuine "Primus" Stoves in Touring Outfits (Foreign)

Nos. 96/L and 210L, for Paraffin No. 71L for Petrol

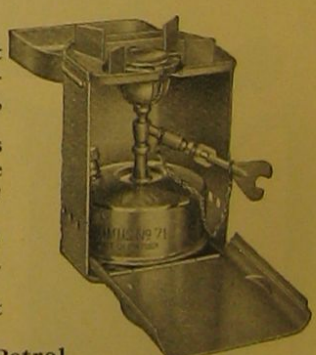


STOVE No. 96 AS INCLUDED IN No. 96/L PARAFFIN OUTFIT

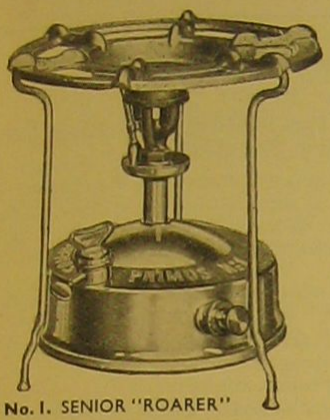
PARAFFIN OUTFIT No. 210L.

These very serviceable and compact outfits are well suited to the requirements of tourists campers, motorists, scouts, hikers, etc.
They are put up in neat metal boxes containing the stove, special cleanable burner, wind shield, spirit can, spanner and cleaning needles.
Nos. 96/L and 210L are for Paraffin and will boil 1 quart of water in 7 mins. and 4 mins. respectively.
No. 71L is for Petrol and boils 1 pint of water in 5 to 6 minutes.

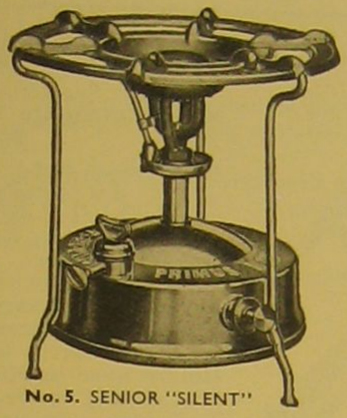
Outfit No.	96/L Paraffin	210L Paraffin	71L Petrol
Tank Capacity, pints	$\frac{1}{2}$	1	—
Size of Box Container, ins.	$5\frac{3}{4}\times4\frac{1}{2}\times2\frac{1}{2}$	$6\frac{3}{4}\times5\frac{1}{4}\times3\frac{1}{2}$	$5\frac{1}{4}\times3\frac{1}{2}\times3\frac{3}{4}$
Price, each ...	**13/-**	**15/9**	**9/-**



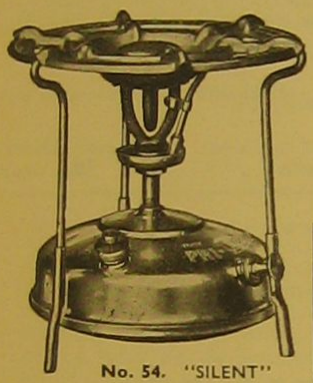
PETROL OUTFIT No. 71L



No. 1. SENIOR "ROARER"



No. 5. SENIOR "SILENT"



No. 54. "SILENT"

DRAUGHTSHIELD

Genuine "Primus" Stoves (Foreign)

These "Primus" burn ordinary paraffin oil, without wick, and gives an intensely hot, blue, smokeless flame.

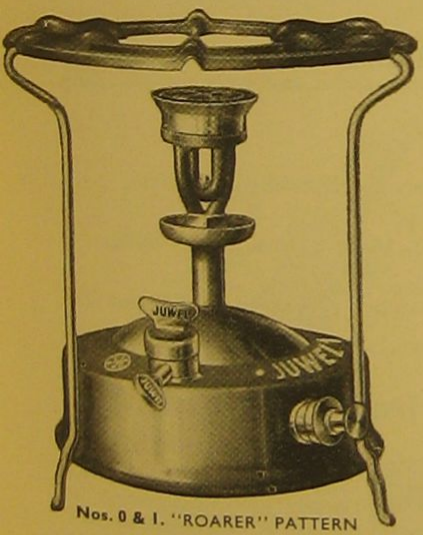
No. 1 "Senior" is a "Roarer" pattern for outdoor use and gives an intense flame equal in power to the silent No. 5 Senior.

No. 5 "Senior" is a "Silent" pattern for indoor use and will boil 2 pints of water in three minutes.

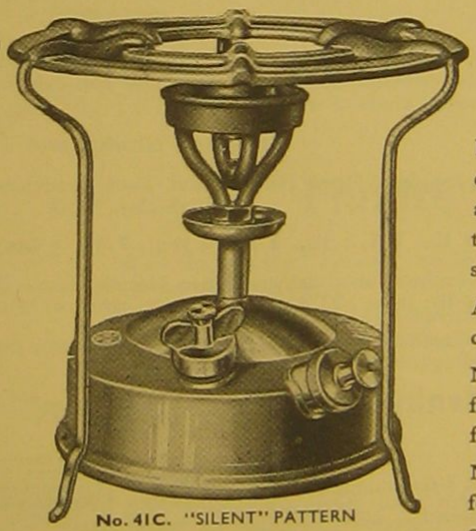
No. 54 "Silent" and No. 51 "Roarer" are low priced stoves of high efficiency.

Prices of Nos. 1 and 5 include Draughtshield and Pilot Lighter and No. 54 includes a Pilot Lighter without Draughtshield.

Type "Primus" No.		1 Senior	5 Senior	54	51
Capacity of Paraffin Tank ...	pints	2⅛	2⅛	2	2
One Filling lasts about ...	hours	4	4	—	—
Height Overall	ins.	8¼	8½	8¼	8¼
Price Complete, Brass Tanks	**each**	**13/6**	**14/3**	**12/9**	**12/-**



Nos. 0 & 1. "ROARER" PATTERN



No. 41C. "SILENT" PATTERN

"Jewel" Wickless Stoves (Foreign)

Intense heat, flame cannot back light, nipple easily accessible, improved short-stroke wide bore air pump, portable and ready for instant use, these are the main features of "Jewel" wickless stoves.

All component parts are standard and interchangeable.

Nos. 0 and 1. "Roarer" pattern are suitable for indoor or outdoor use, and have large powerful burners.

No. 41C—is an improved "Silent" pattern for indoor use and is fitted with a Barthel burner of high efficiency.

Outfit No. 21—contains stove, windshield, spirit can, spanner, etc., all packing into a 3-colour metal box size 7×5×4 ins. Invaluable to motorists, tourists, cyclists, picnics, etc.

No. 21. OUTFIT

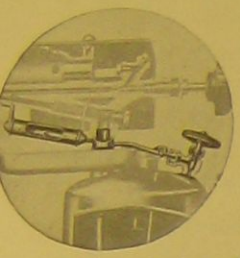
Pattern No.		0	1	41C	Outfit 21
Capacity of Containers	pints	1¾	2¼	2¼	1
Burns at each filling ...	hours	2¾	3⅛	3½	1½
Height Overall ...	ins.	7¾	8½	8½	7½
Weight	lbs.	2	3	3	2¼
Price	**each**	**9/3**	**10/6**	**11/-**	**11/-**

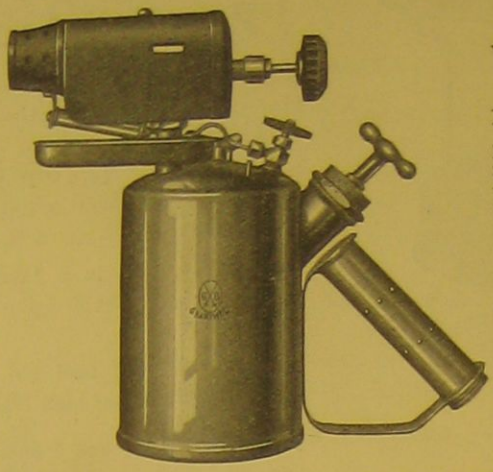
BLOW LAMPS, CASE HARDENING COMPOUNDS, Etc.

"Barthel" Blow Lamp No. 360

(Foreign)

With Automatic Pre-heating. No Methylated Spirit Required.





A few strokes of the pump mixes air with the cold petrol vapour—this mixture is automatically conveyed to the pre-heater. It is only necessary then to apply a light resulting in a gas flame which effectively and quickly warms the burner.

No separate fuel or other method of warming the burner is necessary.

The straight channel gasifier can be easily cleaned—the burner thereby lasting indefinitely.

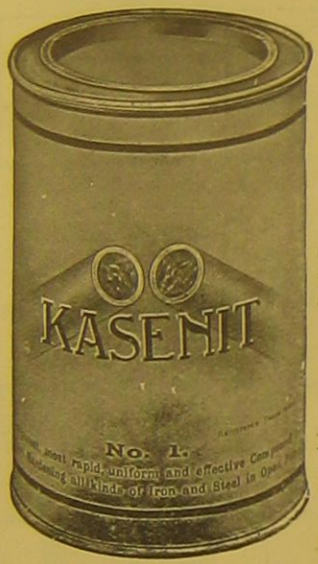
Hollow steel handle holds all spares.

Nickel ring prevents transmission of heat from the burner to the container.

Although only 2 pints capacity this lamp has the power of bigger lamps and can be used in awkward places.

Burns in any position—even upside down—with uninterrupted force

Capacity, 2 pints: Length of flame, 10½ ins.: Burns at full flame, 35 mins.: melts copper wire 2in. × ¼in. in 30 secs. Diam. of flame tube, 1 inch. Height overall, 9¼ ins. Weight, 4 lbs. **Price, complete ... ... 38/- each**



"Kasenit" Case-Hardening Compound

(British Made)

"Kasenit" is always equally effective under all different heat conditions. It is economical in use, non-poisonous, non-inflammable, and non-explosive, and it uniformly and efficiently case-hardens all kinds of iron and steel.

Standard Grades and Prices

No. 1, for Surface, Open Hearth, and Tool Hardening. Specially refined for high-class work.

In tins:—½ lb., 1/5; 1 lb., 2/6; 3 lbs., 7/3; 7 lbs., 16/6; 14 lbs., 32/- each.

No. 2, for ordinary shop use and Open-Hearth Hardening:—
14-lb. tins, 23/9 each; 28-lb. tins, 47/6 each; 1-cwt. kegs, 1/8 per lb.

No. 4, for Case-Hardening, in closed boxes, 16/- per cwt.

"Durvite" Case-Hardening Compound (British Made)

A Hardening material for use in the Muffle and Open-hearth for ordinary or special high-grade work, "Durvite" is highly recommended as possessing the finest qualities. It is made in a variety of grades, brief details of which are given below:—

"Durvite," No. 1, is the standard grade for all ordinary work.

Special "Durvite," No. 1, for rapid hardening with best results, penetrates up to ¼ inch, ⅛ inch in 4 to 5 hours.

Repeating "Durvite." This material can be used over and over again.

Acta Rapid "Durvite," quick surface case-hardening compound, gives a uniform glass-hard case in a few minutes.

Grey "Durvite," for pot case-hardening in an open fire to secure a penetration.

Prices

Muffle Compounds, in bags:—

"Durvite," No. 1	12/- per cwt.	£11 per ton
,, Special, No. 1...	15/- ,,	£14 ,,
,, Repeating ...	21/- ,,	£20 ,,

Bags charged 1/- each, and are credited when returned.

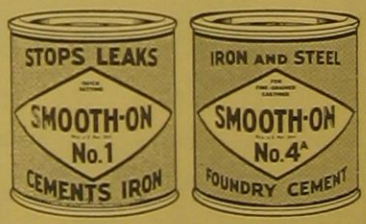
Open-Hearth Compounds

Acta Rapid "Durvite", in tins:—

1 lb., 2/-; 2 lbs., 4/-; 7 lbs., 12/6; 14 lbs., 24/- each. 28 lbs., 45/-; 56 lbs., and 112 lbs. lots, 1/6 per lb.

"Smooth-on" Iron Cement (Made in U.S.A.)

Nos. 1 and 2



"Smooth-on" is an exceptionally successful cement in making quick and substantial repairs to—

Breaks and cracks in castings, and for repairing motor engine water jackets, radiators and tanks, stopping leaks of steam, water, oil, or gas in boilers, etc.

Supplied in powder form, "Smooth-on" is simply mixed with water, and when in the consistency of stiff putty is immediately applied to the part requiring repair. No blow lamp or heat is necessary.

In a few hours the cement hardens, metallizes, and makes a perfectly tight joint at all temperatures, as, like iron, it is capable of expansion or contraction.

Full instructions for use printed on each tin.

Prices—1-lb. tins, 2/2 per lb.; 5-lb. tins, 1/9 per lb. Can also be supplied in 25-lb., 50-lb., and 100-lb. kegs and in other forms for various uses.

SOLDERING FLUX AND LIQUID GLUE

"Fluxite" Soldering Paste (British Made)

SOLDERING PASTE
FLUXITE
REGISTERED
FOR USE INSTEAD OF SPIRITS OR RESIN
SUITABLE FOR ALL METALS (EXCEPT ALUMINIUM) METALS OTHER THAN CAST IRON NEED NOT BE CLEANED DOES NOT CORRODE CAN'T BE SPILT
THE MOST EFFECTIVE FLUX KNOWN

"Fluxite" is the paste flux with which even dirty metals are soldered and "tinned". "Fluxite" does not corrode the metal and can safely be used on electrical and other sensitive apparatus.

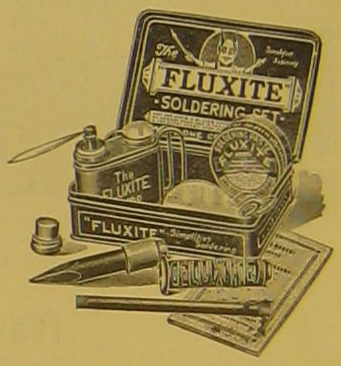
"Fluxite" is suitable for all metals except aluminium. Being in paste form "Fluxite" cannot be spilt and is very suitable for carrying in the tool kit or pocket.

	Prices
New "Junior" Size ... ... in tins	4d. each
Tins containing approx. 2 ozs	8d. ,,
,, ,, ,, 6 ,, ...	1/4 ,,
,, ,, ,, 16 ,, ...	2/8 ,,
In 7 lb. tins and 56 lb. drums	2/- per lb.

"Fluxite" Cord Solder (British Made)

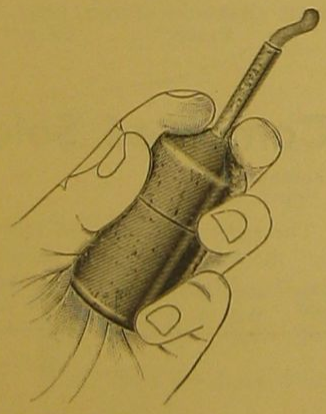
Supplied in reels containing ½ lb. **Price ... ... 1/9 each**

"Fluxite" Soldering Sets (British Made)



This is a compact, substantial outfit, particularly suitable for household use and for the tool-kits of motor cars, and motor cycles. It enables anyone to do ordinary soldering work, and contains a special "small space" soldering iron with non-heating metal handle, pocket soldering lamp, solder, "Fluxite" and instructions, in metal case.

Price, complete 7/6

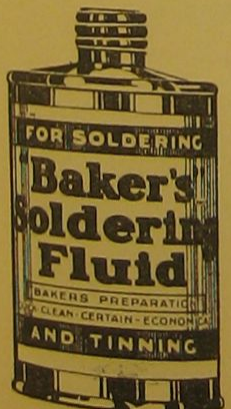


"Fluxite" Gun (British Made)

With the gun the "Fluxite" can be quickly put just where it is required on the soldering job.

Can also be used as a miniature grease gun for projecting grease into bearings and grease cups, etc. The nozzle portion should be filled and the cup half filled. Put together and press as required.

Price ... ... 1/6 each



"Baker's" Soldering Fluid (British Made)

This preparation makes soldering quick, easy and perfect. It is made to a special chemical formula and does not splutter or rust or discolour bright metals and it both "tins" and cleans the iron.

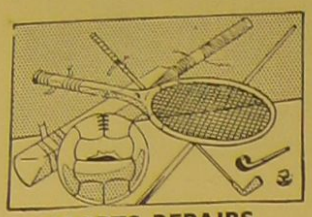
	Prices
In 2½ ozs. tins	6d. each
,, 8 ozs. ,, ...	1/- ,,
,, 12 ozs. ,, ...	1/6 ,,
In 32 ozs. tins.	3/- each
½ gall. containers	5/- ,,
1 gall. ,, ...	9/- ,,

LIQUID GLUE, SOLDERS, ETC.

Rawlplug "Durofix" (British Made)

Waterproof, Heat Resisting.

Anything that can be mended with ordinary adhesive can be repaired more satisfactorily and permanently with "Durofix." **It is colourless, leaves no ugly stain and dries in a few minutes.**



SPORTS REPAIRS

Being heat resisting, china, glass or crockery, repaired with "Durofix" will withstand the heat of an oven, or boiling water.

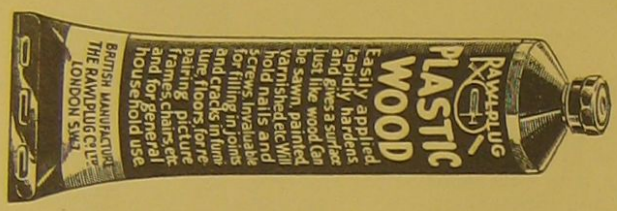
The waterproof properties of "Durofix" make it invaluable to motorists, sportsmen, etc.

As "Durofix" is a non-conductor of electricity it can be used satisfactorily in wireless work.

100 OTHER USES

Prices.

"Durofix," in orange tubes for instant use ... **6d. and 1/- each: Thinner and Remover 9d. and 1/3 per bottle.**


RAWLPLUG
PLASTIC WOOD
Easily applied rapidly hardens and gives a surface just like wood. Can be sawn, painted, Varnished etc. Will hold nails and screws. Invaluable for filling in joins and cracks in furniture, floors, for repairing picture frames, chairs, etc. and for general household use
BRITISH MANUFACTURE
THE RAWLPLUG CO. LTD
LONDON S.W.15

Rawlplug Plastic Wood (British Made)

Weatherproof and Waterproof this plastic wood is a pliable material which can be moulded and shaped as desired.

When exposed to the air it becomes hard—like real wood—and it can be cut, polished, painted and varnished. Its great elasticity adapts it to many uses.

Supplied plain, oak, mahogany and walnut finishes.

Prices ... Tubes, 6d. and 1/–; 2 oz. Tin, 9d.; 4 oz. Tin, 1/3: ½ lb. Tin, 1/9: 1 lb. Tin 2/9

Rawlplug Heatless Solder (British Made)

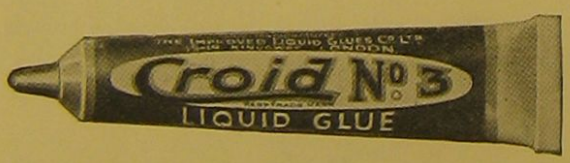
This is a scientific preparation in paste form. It dries in a few minutes and speedy repairs to all articles of iron, brass, copper aluminium, etc., can quickly be made. **Price ... 6d. per tube,**

A Display card containing twelve tubes can be supplied, details sent on request.

Rawlplug "Fifty-Fifty" Combined Solder and Flux (British Made)

This quick flowing compound makes soldering easy. The right proportions of solder and flux being already mixed in the one product—"tinning" the soldering iron is simple and a thoroughly satisfactory repair can be made. **Price, ... 6d. per tube.**

"Croid" Liquid Glue (British Made)



Clean and easy to apply—
Always ready for use.

1 lb. tin "Aero" Glue	... 2/– each	28 lbs. Tins "Aero" Glue	... 20/– each
½ lb. ,, ,, ,,	... 1/3 ,,	14 lbs. ,, ,, ,,	... 10/6 ,,
4 oz. ,, ,, ,,	... 9d. ,,	7 lbs. ,, ,, ,,	... 5/6 ,,
2 oz. ,, ,, ,,	... 6d. ,,	Glue Kettles containing 2 lbs.	... 3/6 ,,

"Croid" Home Outfit ... 2/– each
,, No. 3 in tubes ... 6d. ,,
,, ,, ,, ... 2d. ,,

LE PAGE'S LIQUID GLUE

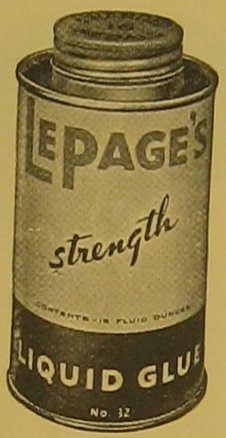
(BRITISH EMPIRE PRODUCTS)

Always liquid and ready for use. **Awarded 16 medals for Excellence.**

Extra strong liquid glue, ready for use, contained in tubes, bottles, and cans. The tubes and bottles are packed in attractive three colour counter display containers.

6d. tubes and **10d.** bottles are packed 1 dozen to display container.

3d. tubes are packed 2 dozen to display container.



THE BOTTLES HAVE A PATENTED SPATULA SPREADER, AND A NON-EVAPORATING SCREW CAP

No heating required.

Supplied in the following sizes:—

No. 24, Enamelled Tubes, **3d.** each		**No. 26**	**6d.** each
,, **25,** Bottles		**10d.**	,,
Cans for Factory use.			
No. 31, 8 oz.		**3/–**	each
,, **32,** 16 oz.		**5/–**	,,
,, **33,** 32 oz.		**9/–**	,,
,, **35,** 8 lbs.		**30/–**	,,

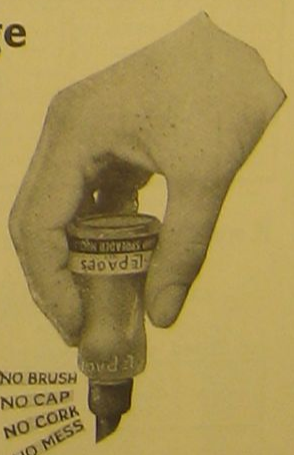
LE PAGE'S Grip Spreader Mucilage

Puts the gum where you want it.

A handy container suitable for home and office use. Display carton contains one dozen bottles.

No Brush. No Cork. No Mess.

No. 7 **Price per bottle 6d.**



Le Page's Heatproof and Waterproof Cement

Specially prepared to meet demand for a suitable cement for use on China, Glassware, etc. that will make an invisible joint, and **stand hot and cold water.**

No. 29 in Tubes ... 6d. each

LePage's Heatless Liquid Solder

Mends satisfactorily all metals **without the aid of heat.** Put up in three colour counter containers of 1 dozen tubes.

No. 48 per tube ... ... 6d. each

B1

Kaye's Cheap Grade Oil Can

(British Made)

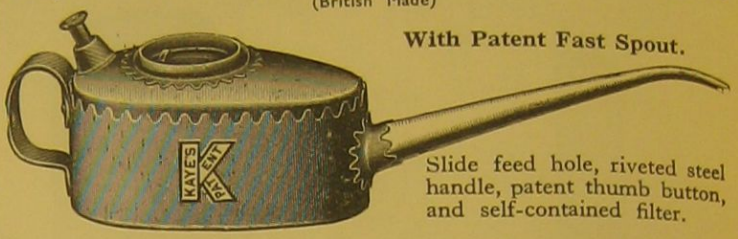
These cans are of extraordinarily good value.
They are light pattern of seamless steel fitted with the patent slide feed hole filter and thumb button, being almost identical with No. 17 but without ring round the feed hole.

Capacity Pints	Length of Spout Ins.	Fast Spout No.	Fast Spout per Doz.	Detachable Spout No.	Detachable Spout per Doz.
⅛	5	160	22/-	700	28/-
¼	6	170	24/-	800	30/-
½ ¾	7	180	28/-	900	34/-
1	8	190	33/-	901	39/-

Kaye's Serrated Seamless Steel Oil Cans

(British Made)

With Patent Fast Spout.



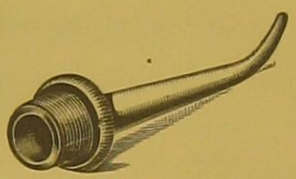
Slide feed hole, riveted steel handle, patent thumb button, and self-contained filter.

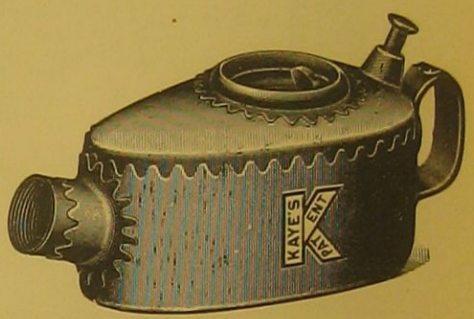
Capacity Pints	Length of Spouts Ins.	No.	Price per Doz. Fast Steel Spouts	Price per Doz. Copper or Brass Spouts
⅛	4½	*5 B	24/-	25/-
¼	4½	*6 B	26/-	27/-
⅓	5	16	28/-	30/-
½	6	17	30/-	32/-
¾	7	18	34/-	36/-
1	8	19	39/-	41/-
1½	10	20	44/-	47/-
2	12	21 A	50/-	53/-
4	16	23	110/-	114/-

*Nos. 5 B and 6 B have screw feed holes and steel handles

With Interchangeable Screwed Spout.

With slide feed hole, riveted steel handle and thumb button.





Capacity Pints	Length of Spouts Ins.	No.	Price per Doz. Interchangeable Steel Spouts	Price per Doz. Interchangeable Copper or Brass Spouts
⅛	5	7	34/-	36/-
¼	6	8	36/-	38/-
½ ¾	7	9	40/-	42/-
1	8	9 A	45/-	47/-
1½	10	10	50/-	53/-
2	12	22 A	60/-	63/-

With Fast or Interchangeable Spouts and Hinged Cover.

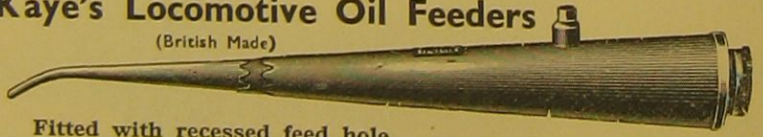
Raising the hinged cover the slide feed hole is automatically opened.

Size Capacity Pints	Size Length of Spouts Ins.	Price per Dozen With Seamless Fast Spouts No.	With Steel Spouts	With Copper or Brass Spouts	Price per Dozen With Interchangeable Screwed Seamless Spouts No.	With Steel Spouts	With Copper or Brass Spouts
⅛	4½	*5 B	24/-	25/-	—	—	—
¼	4½	*6 B	26/-	27/-	—	—	—
⅓	5	16 A	31/-	33/-	7 A	37/-	39/-
½	6	17 A	34/-	36/-	8 A	40/-	42/-
¾	7	18 A	38/-	40/-	9 B	44/-	46/-
1	8	19 A	43/-	45/-	9 C	49/-	51/-
1½	10	20 A	48/-	51/-	10 B	54/-	57/-
2	12	21	54/-	57/-	22	64/-	67/-

*Nos. 5 B and 6 B have screw feed holes, soldered handles, and fast spouts only.

Kaye's Locomotive Oil Feeders

(British Made)



Fitted with recessed feed hole

Length Ins.	Approx. Capacity Pints	With Fast Steel Spout per Doz.	Force Feed Type per Doz.
12	¼	44/-	65/-
15	¼	48/-	69/-
18	½	52/-	73/-
24	¾	58/-	79/-
30	1	64/-	85/-
36	1¼	72/-	93/-
42	1½	84/-	105/-

Kaye's Oil Can Spouts

(British Made)

Practically Seamless

Formed of one piece of metal **doubly wrapped** and sealed by dipping in molten metal.

Length	5	6	7	8	10	12	16	ins.
Steel	3/6	3/9	4/-	5/-	6/6	8/-	11/-	doz.
Copper or Brass	5/-	5/6	6/-	7/-	9/6	11/-	14/-	,,

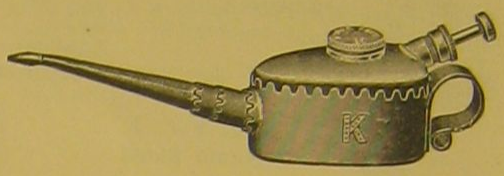
OIL CANS

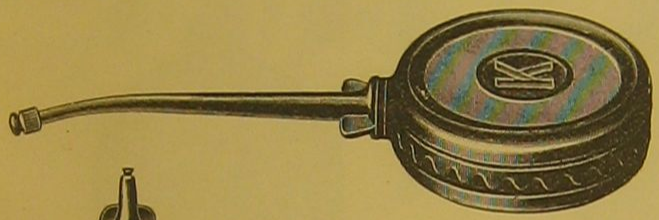
Kaye's "Pump" or "Forced Feed" Lubricating Oil Cans (British Made)

These Cans are suitable for petrol or oil and are recommended for lubricating and other purposes. They will force the lubricant a distance of several feet. Inside parts are tinned to prevent verdigris. Straight spout fitted to ¾ to 3 pint Cans.

Capacity Pints	Steel Spouts		Copper or Brass Spouts	
	No.	Price, Doz.	No.	Price, Each
⅛	290	46/-	28	5/6
¼	300	50/-	31	6/-
½	310	54/-	31 C	6/6
¾	320	57/-	32 C	7/6
1	330	67/-	33 C	8/6
1½	340	77/-	34 C	10/-
2	350	93/-	35 C	11/6
	360	104/-	36 C	13/-

No. 322, ½ pint, with Interchangeable Spout, 66/- per doz.





Kaye's Motor Cycle Oil Can

Strong tinplate body with soldered, serrated joining, fitted with polished brass seamless tubular detachable screwed spout, wing nut screw, and pin cap on spout end.

No.	Style		Price, per doz.
80.	Cycle	Length 4 ins.	... 12/-
81.	Small Motor Cycle	,, 5 1/16 ,,	... 16/-
82.	Motor Cycle	,, 6⅛ ,,	... 18/-
81 B.	Cycle (Brass)	,, 5 1/16 ,,	... 26/-
82 B.	Motor Cycle (Brass)	,, 6⅛ ,,	... 30/-

Kaye's Joiners' Conical Leakproof Oil Can

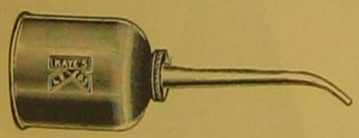
The piston or valve head is sunk and no oil can escape until the bottom is pressed.

No.	74L	77L
Capacity, pint ...	¼	¼
Price, per doz. ...	15/-	14/-

Kaye's Corrugated Oil Cans

For Bench Use, etc.

No.	74	75	76
Capacity, pint	¼	⅜	½
Price, per doz.	12/-	13/-	14/-



Kaye's Seamless Steel Reaper Oil Cans, No. 26

With spring bottom, without valve. Solid brass feed hole screw. Double wrapped spout. Wide filling hole.

No. 26. Capacity ½ pint ... ... 12/- per doz.

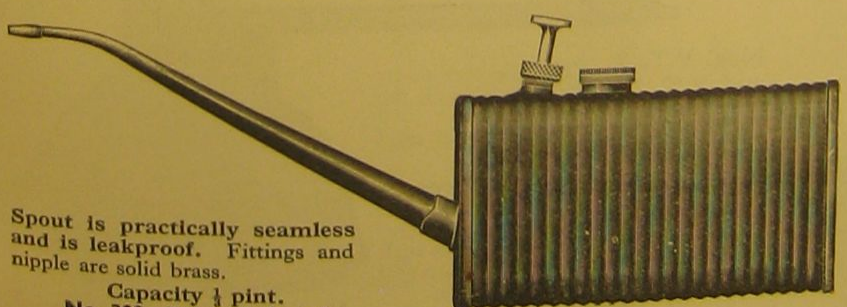
COMET OIL CANS (English Made)

"Force Feed" Oil Can, No. 300

This new Can is of very high quality and moderate price.

It will throw a jet of oil several feet thus showing the power of the pump, and it can be used in practically any position.

The body is of ribbed steel, oval in shape, is tinned inside and finished green enamel.



Spout is practically seamless and is leakproof. Fittings and nipple are solid brass.

Capacity ¼ pint.
No. 300 Price 2/3 each

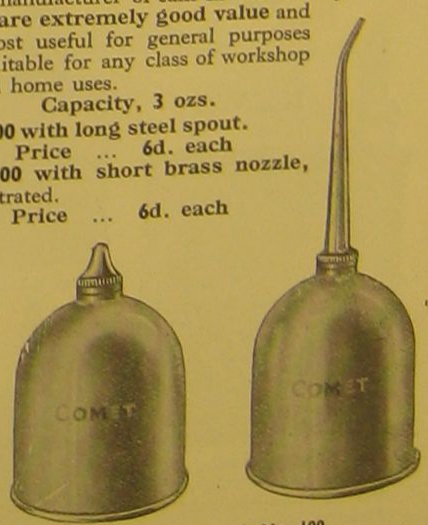
Nos. 100 and 200

These soundly constructed seamless steel oil cans, of heavy gauge plate are produced by the finest manufacturer of cans in this country. **They are extremely good value** and are most useful for general purposes and suitable for any class of workshop and all home uses.

Capacity, 3 ozs.

No. 100 with long steel spout.
Price ... 6d. each

No. 200 with short brass nozzle, as illustrated.
Price ... 6d. each



No. 200 No. 100
ILLUSTRATIONS HALF ACTUAL SIZE

"Valvespout" Oilers

The Oil Can that Never Leaks

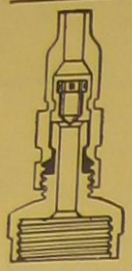


DIAGRAM SHOWING THE "VALVESPOUT" LEAKPROOF MECHANISM

The special feature of these oilers is the patented spout, which is arranged in such a way that when closed the can is **absolutely leakproof.** There are no washers, caps, pins or other loose parts to get mislaid.

A half turn of the spout opens or seals the outlet and **when closed no oil can possibly leak through.**

No. V.T. 1

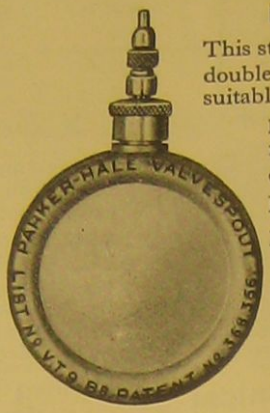
Celluloid Sided

The celluloid sides of this compact oiler make it very easy to see the contents of the container.

For household use, in the car, and cycle tool-bag they are very popular.

Holds 1 fluid oz.

Price 1/– each

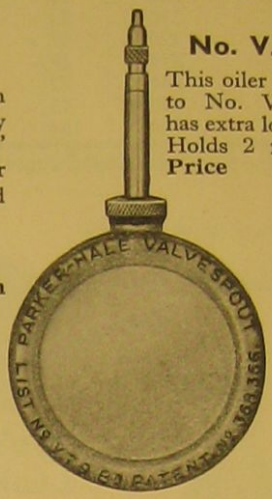


No. V.T. 9

This stout metal oiler with double popple sides is very suitable for mechanics' pocket use, and for motor cycle and cycle tool kits.

Holds 2 fluid ozs.

Price 1/6 each



No. V.T. 13

This oiler is similar to No. VT9, but has extra long spout.

Holds 2 fluid ozs.

Price 1/9 each

No. V.T. 12

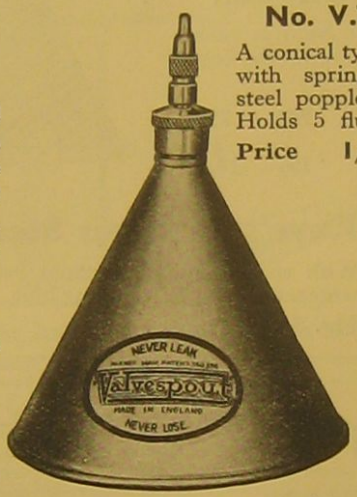
Celluloid Sided

This model is identical with No. V.T.1 with the exception that the spout is lengthened for special purposes.

A useful oiler for the Cycle Kit, etc.

Holds 1 fluid oz.

Price 1/3 each

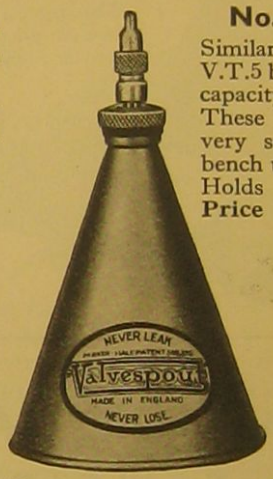


No. V.T. 5

A conical type oiler with spring sheet steel popple base.

Holds 5 fluid ozs.

Price 1/3 each



No. V.T. 4

Similar to No. V.T.5 but of smaller capacity.

These oilers are very suitable for bench use.

Holds 3 fluid ozs.

Price 1/– each

No. V.T. 8

An oblong shape with double popple sides, useful for tool-kits and restricted spaces.

Holds 4 fluid ozs.

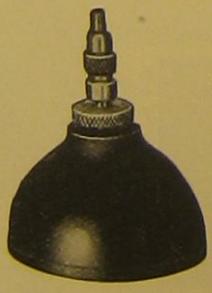
Price ... 1/6 each

No. V.T. 10

No. V.T. 10

A **leakproof celluloid oiler** appealing particularly to fishermen. By obviating the usual brush and bottle, the delicate lures can now be oiled with comfort, even with numb fingers.

Price ... ... 1/3 each



No. V.T. 2

Nos. V.T. 2 and V.T. 14

Black celluloid oilers with transparent base.

No. V.T.2 Price 1/3 each

No. V.T. 14 with long spout as V.T. 12.

Price 1/6 each

"Force-Feed" Oilers Nos. V.F. 4 and 5

The die cast screw top contains all the mechanism. All fittings are of solid brass.

Nozzle hermetically seals and this "Valvespout" Oiler will not leak even if turned upside down.

No. V.F.5—Contains ½ pint **3/6 each**
No. V.F.4 „ ½ „ **4/– „**

OIL CANS

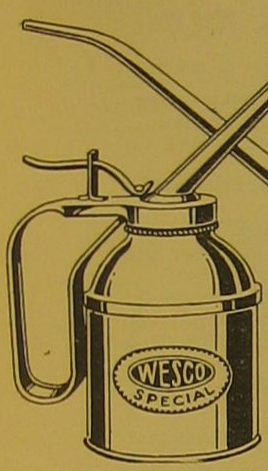
"Wesco" Direct Pump Oil Cans (British Made)

"Wesco" Oilers are fitted with a very efficient and simple pumping device of great power.

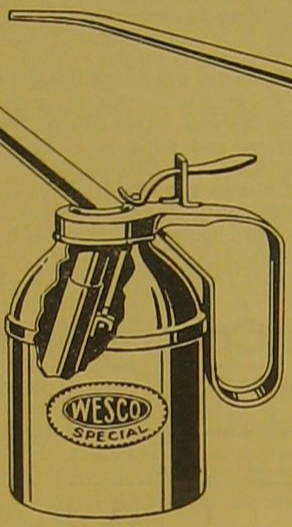
It consists of two brass tubes, one telescoping the other and by depressing the lever the desired amount of oil is delivered, without waste, right to the required place.

The entire working assembly—spout, pump and handle—is one detachable unit and facilitates cleaning.

Properly balanced, "Wesco" oilers are comfortable and easy to handle.



No. 3320

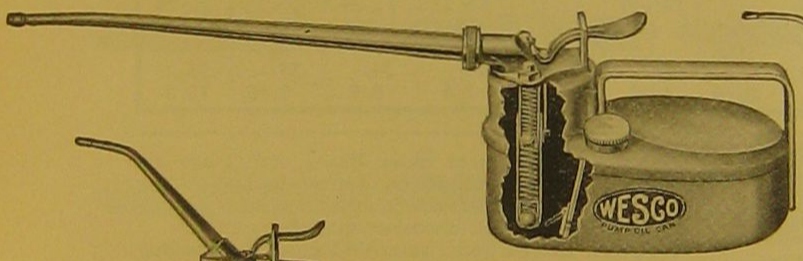


No. 3340

No. 3300

No. 5

No. 10

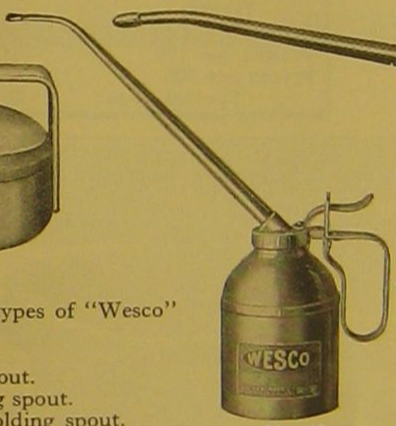


No. 320

No. 20

These illustrations show the various types of "Wesco" Oilers listed below.

No. 320—is the Engineers model.
No. 100—is coppered steel, fixed spout.
No. 200—Tool kit model with folding spout.
No. 220—Motor cycle model with folding spout.
Nos. **3300–3340** are light pattern, finished red.



No. 40

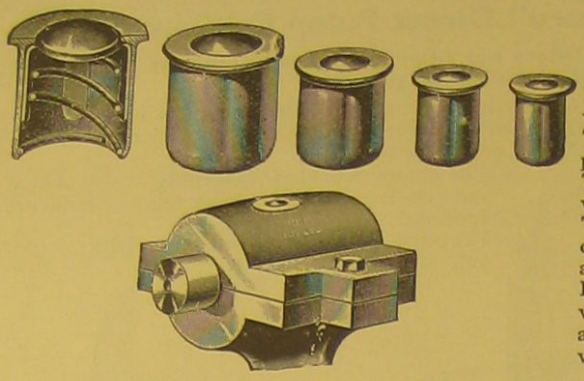
No. 100

No. 35

No. 60

Sizes and Prices

No.	Capacity Pints	Length and Style of Spout	Height Overall Ins.	Base Diam. Ins.	Fixed Spout Price, Each	Detachable Spout Price, Each
5	$\frac{2}{3}$	5 Ins. Angle	$6\frac{3}{4}$	3	4/-	4/6
10	$\frac{1}{2}$	5 ,, Bent	9	3	4/6	5/-
20	$\frac{1}{2}$	5 ,, Angle	$7\frac{1}{2}$	3	4/6	5/-
30	$\frac{1}{2}$	9 ,, Bent	13	3	4/6	5/-
35	1	9 ,, Bent	14	$3\frac{1}{4}$	5/6	6/-
40	1	9 ,, Angle	$11\frac{1}{4}$	$3\frac{1}{4}$	5/9	6/3
45	2	10 ,, Bent	15	4	—	7/-
60	1	$11\frac{1}{2}$,, Horizontal	$7\frac{1}{4}$	4	—	7/-
100	$\frac{1}{4}$	6 ,, Horizontal	6	$1\frac{3}{4}$	4/6	—
200	$\frac{1}{4}$	6 ,, Folding	6	$1\frac{3}{4}$	6/6	—
220	$\frac{1}{10}$	5 ,, Folding	$4\frac{3}{4}$	—	5/9	—
320	1	$8\frac{3}{4}$,, Horizontal	—	—	—	6/6
3300	$\frac{1}{4}$	5 ,, Angle	—	—	3/3	—
3320	$\frac{1}{2}$	5 ,, Angle	—	—	3/6	—
3340	1	9 ,, Angle	—	—	4/6	—

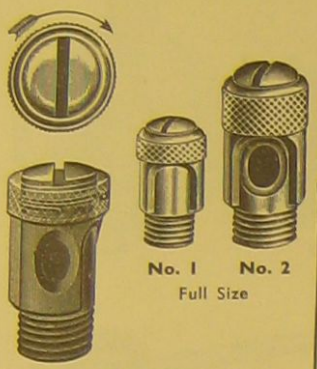


Bennett Handy Oilers (Made in U.S.A.)

Made in sizes from $\frac{1}{4}$ to $\frac{5}{8}$ inch, rising by $\frac{1}{16}$ inch

Its advantages are in economy in cost and applications, convenience and neatness in use, and simplicity of construction.
To apply them it is only necessary to drill the oil-hole the proper size and force the Oiler in.
The oil is inserted by pressing the oil-can upon the valve, which closes by a spring when the can is removed.
The Oiler projects but little above the surface, making it convenient to clean and wipe over, and giving it a neat and attractive appearance.
It is made of three pieces—a case, valve, and spring—the valve being made with projecting arms to guide it centrally and allow the oil to pass by. Made in sizes from $\frac{1}{4}$ to $\frac{5}{8}$ inch, with variation of $\frac{1}{16}$ inch.

Price ... ... 16/8 per 100



No. 1 No. 2
Full Size

To open, turn in direction, indicated by arrow.

Winkley Oil Hole Covers, Style C (Made in U.S.A.)

These Oil-hole Covers are opened and shut by hand. They are made in five sizes, ranging from $\frac{5}{16}$ to $\frac{5}{8}$ inch in maximum diameter.
They are usually supplied threaded to the size and pitch stated below, but can be had plain, if desired, for driving into position with a raw-hide mallet.

Nos.	**0**	**1**	**2**	**3**	**4**	**5**
Size of Plain Shank... ... inch	—	—	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	$\frac{15}{32}$
,, Body ... ... ,,	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
,, Threads	10×32	$\frac{1}{4}$×32	$\frac{5}{16}$×32	$\frac{3}{8}$×24	$\frac{7}{16}$×24	$\frac{1}{2}$×24
Diameter of Cap ... ... inch	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$
Weight, per 100 ... ... lbs.	1	1½	2½	3½	4½	6
Prices per 100	**24/-**	**25/-**	**28/-**	**34/-**	**39/-**	**55/-**
,, Special Taps ... **each**	**6/10**	**6/10**	**7/6**	**8/9**	**9/10**	**10/3**

Seamless Steel Shop Pans (British Made)

Strip Iron Sliders can be riveted along bottom to give greater strength at a small extra cost.

These Seamless Steel Shop Boxes and Trays are indispensable for engineers' stores, nut and bolt manufacturers, cartridge factories, motor garages, and chemical works, chocolate manufacturers, etc. They will also be found valuable for use as annealing pans, suds pans, trays, oil drippers, stearine coolers. They can be made in any size or shape, and prices will be quoted for any special designs to meet customers' requirements.

Regularly supplied in black finish at prices as below. **Tinned, Galvanised, Enamelled or Steel, self-colour finishes,** can be supplied. **Prices on application.**

Sizes and Prices—Black Finish

No.	Length Ins.	Breadth Ins.	Depth Ins.	Thickness W.G.	Weight Lbs.	Price Per Doz.
C	9	5	3	16	28	25/6
D	12	7	3	16	44	29/-
1	16	8¾	4	16	64	36/-
2	16	8¾	5¼	16	78	40/-
3	18	9	4	16	79	40/-
4	18	9	5½	16	95	48/-
9 A	21	13¾	5¾	16	149	68/-
18	24½	12	8	16	168	84/-
23	23½	10½	6	12	—	120/-
F	14¼	10¼	3	16	75	44/-
10 A	16	9½	4½	16	91	60/-
10 D	20	10	3	16	94	60/-
19	24	12	6	16	156	96/-
20	25¼	12	4	16	130	76/-
5 A	19	14	2½	16	96	48/-
6 A	19	14	3½	16	108	52/-
11 A	23½	18	3	16	156	68/-
12 A	23½	18	5	16	190	96/-
15 A	30	20	3¾	16	196	104/-
16 A	36	20	3¾	16	—	116/-
26	24	18	6	16	—	168/-
27	14¼	10¼	3½	16	—	60/-

RAWLPLUGS, TOOL HOLDERS AND BITS

Rawlplugs (British Made)

These tough fibre stiffened and chemically treated tubes are invaluable for fixing electric, gas or sanitary fittings, wires, cables, machinery, fuse boxes, piping, guttering, shelving, cupboards, coat-hooks, overmantels, skirting, picture-rails, etc. Made in all sizes and lengths to take any size screw or coach screw.

Price per 100 Rawlplugs in Boxes

Size of Rawlplug	Will take the following sizes of SCREWS	LENGTHS OF RAWLPLUGS Inches ½	⅝	¾	1	1¼	2	2½	Ass'td L'gths
3	No. 3 2 & 1	1/4	1/5	1/6	1/8	—	—		1/7
6	,, 6 5 ,, 4	1/6	1/7	1/9	2/-	—	—		1/9
*8	,, 8 ,, 7	1/9	1/11	2/1	2/5	3/-	3/6		2/6
10	,, 10 ,, 9	2/-	2/2	2/4	2/9	3/5	4/1		2/10
12	,, 12 ,, 11	—	—	2/9	3/2	4/-	4/9		3/6
14	,, 14 ,, 13	—	—	3/3	3/9	4/9	5/8		4/6
*Rawlplugs size No. 8 also supplied in boxes of 50, assorted lengths at 1/6 per box.									
Large sizes of Rawlplugs No. 16, 18 and 20 in boxes of 50 only.									
16	No. 16 & 15 (screws)	—	—	—	2/6	3/1	3/8	4/3	3/6
18	,, 18 ,, 17 ,,	—	—	—	3/-	3/8	4/4	5/-	4/3
20	,, 20 ,, 19 ,,	—	—	—	3/6	4/3	5/-	5/9	5/-

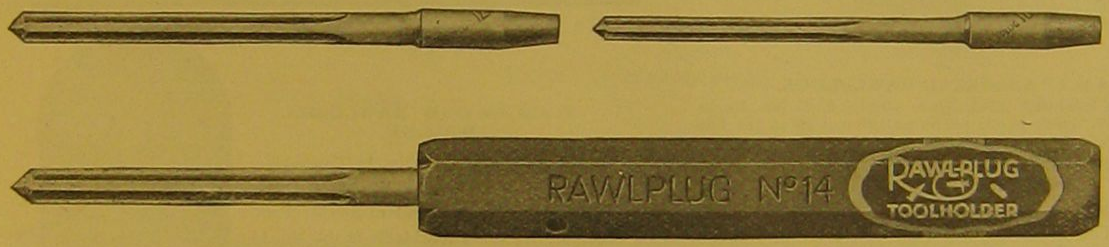
Rawlplugs for Coach Screws Prices in Boxes of 25 plugs

Size of Rawlplugs	Will take the following sizes of Gimlet Pointed Coach Screws	LENGTHS OF RAWLPLUGS Inches 1½	2	2½	3	3½	4	Ass'td L'gths
22	⅜"	3/-	3/9	4/6	5/3	—	—	4/3
24	7/16"	3/9	4/7	5/5	6/3	—	—	5/3
26	½"	—	5/5	6/4	7/3	8/2	—	6/3
28	9/16"	—	—	8/2	9/3	10/4	11/5	8/3
30	⅝"	—	—	—	12/4	13/9	15/3	13/-

When ordering, please specify size and length of Rawlplug required.

***NOTE.—Prices in light face type indicate extra short plugs for special work only.**

Rawlplug Tool Holders and Bits (British Made)



Rawlplug Tool Holders are made in 14 sizes for use with any size of Rawlplug. Tool Holders take either Jumping or Bullet Rawldrills or Bits

Tool Holder Nos.	3, 6 and 8	10, 12, 14, 16 and 18	20, 22, 24 and 26	28 and 30
Price each Tool Holder only	1/6	1/9	2/6	3/-

Rawlplug end Screw Gauge: **3d. each:** Coach Screw Size Gauge: **6d. each.**

Rawldrills (Jumping or Bullet Bits)

Jumping Rawldrills are suitable for use in brick, concrete, tile or hard materials.
Bullet Rawldrills are for use in plaster and soft materials.

No. (fitting Tool Holders of same size)		3	6	8	10	12	14	16	18	20	22	24	26	28	30
Diam. of Bits. ins.		1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	7/16	1/2	5/8	3/4	1
Jumping Rawldrills or Bits	per doz.	3/3	3/9	4/6	5/6	6/6	7/6	9/-	11/-	14/-	21/-	28/-	40/-	60/-	85/-
Bullet ,, ,, ,,	,,	2/9	3/3	4/-	4/9	—	—	—	—	—	—	—	—	—	—

Adaptable Rawldrills (Jumping or Bullet Bits)

These Bits are made so that three size of bits will fit one size of toolholder. For the nine sizes of Rawldrills (Nos. 3 to 20) three Standard Holders (Nos. 8, 14 and 20) only are required instead of nine as before.

Fitting Tool Holder		No. 8			No. 14				No. 20		
Rawldrill No.		3	6	*8	8	10	12	*14	16	18	*20
Price—Jumping Type Rawldrills	per doz.	4/2	4/4	4/6	7/-	7/2	7/4	7/6	12/-	13/-	14/-
,, —Bullet ,, ,,	,,	3/8	3/10	4/-	6/4	6/6	6/8	6/10	—	—	—

*Standard Rawldrills. In these sizes adaptable Rawldrills are not necessary to fit.

When ordering always specify size of Tool Holder in which the Adaptable Rawldrills are to be used.

Ejectors

No. 1 for Holders Nos. 3, 6 and 8 ... ... **Price 2d.** each
No. 3 ,, ,, Nos. 16 to 26 ... ... **Price 3d.** ,,
No. 2 for Holders, Nos. 10, 12 and 14 **Price 3d.** each
No. 4 ,, ,, Nos. 28 and 30 **Price 3d.** ,,

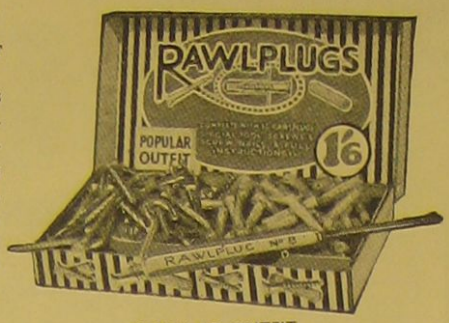
RAWLPLUG OUTFITS & MECHANICAL HAMMER

Complete Rawlplug Outfits (British Made)

POPULAR OUTFIT

Contents:

30 Rawlplugs. (No. 8 assorted lengths); Rawlplug Toolholder, complete with Rawldrill; supply of Screw Nails, Screws, Screw Hooks, etc., and Instruction Folder. **Price 1/6**

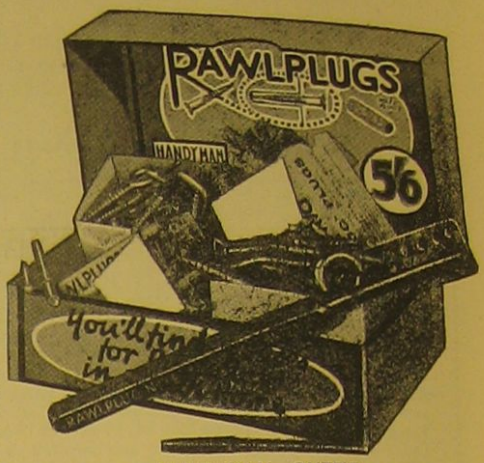


POPULAR OUTFIT

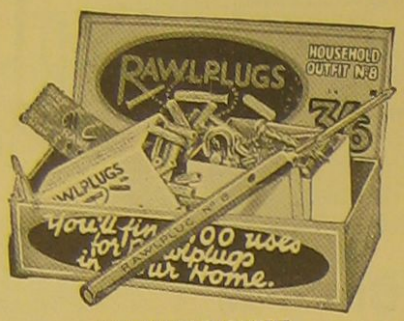
HANDYMAN OUTFIT

Contents: 1 No. 14 Toolholder; 1 No. 14 Rawldrill; 1 No. 8 Adaptable Rawldrill with No. 14 shank; 1 No. 8 Adaptable Bullet Bit with No. 14 shank; 1 Ejector; 1 Plug and Screw Gauge; 100 No. 8 Assorted Rawlplugs; 50 No. 14 Assorted Plugs; 20 No. 8 Screws, Screw Hooks, Square Hooks, etc.; 15 2" Screw Nails for No. 8 Rawlplugs; 10 Assorted No. 14 Screws, Screw Hooks, etc.; 10 2" Screw Nails for No. 14 Rawlplugs; and full instructions.

Price ... 5/6



HANDYMAN OUTFIT



HOUSEHOLD OUTFIT

HOUSEHOLD OUTFIT

Contents:

75 Rawlplugs (No. 8 assorted lengths); No. 8 Toolholder; Jumping Rawldrill for brick, concrete, etc.; Bullet Bit for plaster (No. 8 size); 1 Ejector, 1 Plug and Screw Gauge; supply of Screw Nails, Countersunk and Roundhead Screws, Hooks, and Instruction Folder.

Price ... 3/6

MECHANICS' OUTFITS

Each Outfit contains **100 Rawlplugs**, assorted lengths, of the size stated, together with **50** No. 8 Size Rawlplugs, assorted lengths, also Toolholder, Rawldrills, Ejector, Plug and Screw Gauge, Screws, Screw Hooks, Screw Nails, etc.	Size No.					
	3	6	8	10	12	14
Prices	4/6	5/-	5/6	6/-	7/-	8/-

Box of "4 in 1" ASSORTED RAWLPLUGS.

This box contains the following Rawlplugs:—40 No. 8, 25 No. 10, 15 No. 12, and 20 No. 14. Each size is neatly partitioned off in the box which enables you to select whatever size you require quickly and easily.

Price, complete 3/6

RAWLPLUG ALL-PURPOSE HOOKS

Attractively packed in divided leather board box which contains 1 gross each of 4 different kinds of heavy brass finish screw hooks, suitable for use with No. 8 Rawlplugs.

Price of the complete box 22/-

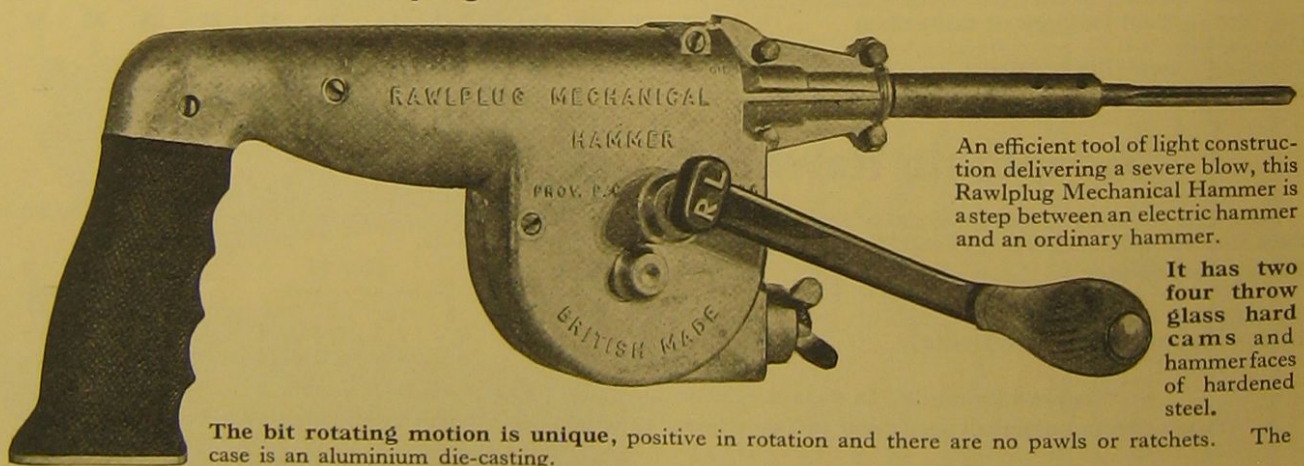
Other Rawlplug Outfits are available. Particulars will be sent on request.

FOUR-IN-ONE RAWLDRILL WALLET

This outfit comprises a No. 14 Toolholder; No. 8, No. 10 and No. 12 Adaptable Rawldrills; and a No. 14 Standard Rawldrill and Ejector. All these Rawldrills fit the No. 14 Toolholder. Complete set supplied in a strong, neat drill case, bound, and divided in three compartments.

Complete Outfit Price ... 4/3

Rawlplug Mechanical Hammer (British Made)



An efficient tool of light construction delivering a severe blow, this Rawlplug Mechanical Hammer is a step between an electric hammer and an ordinary hammer.

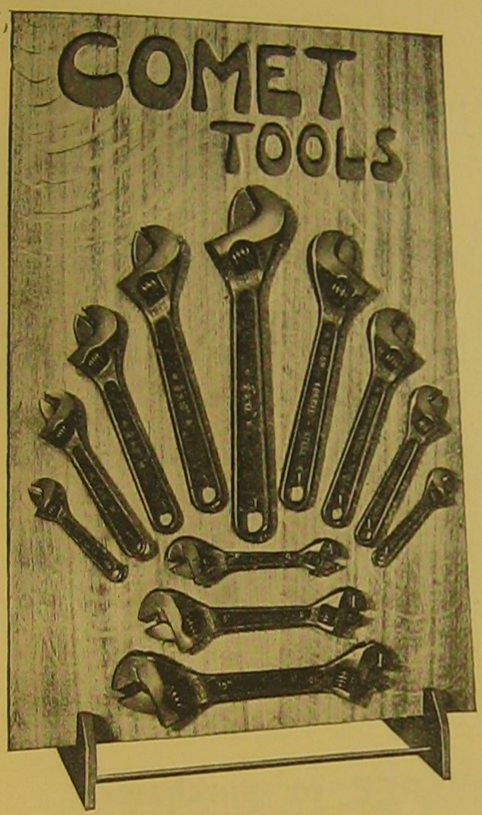
It has two four throw glass hard cams and hammer faces of hardened steel.

The bit rotating motion is unique, positive in rotation and there are no pawls or ratchets. The case is an aluminium die-casting.

The average turning speed is 120 r.p.m. giving 480 blows per minute. Power of blow can be regulated by turning the fly-nut and by reducing spring pressure the hammer can be used as a slow rotating drill.

Holes can be made $\frac{1}{8}$ **to** $\frac{3}{8}$ **inch diameter to take Rawlplugs Nos. 3 to 20.**

Price, complete with 2 Rawldrills Nos. 8 and 14 and Ejector £1 10 0



"COMET" WRENCH DISPLAY BOARD

COMET
Wrench Display Board

Carries 12 Wrenches, mounted as illustrated, supplied FREE to purchasers of two sets.

Price 65/10 Subject to discount.

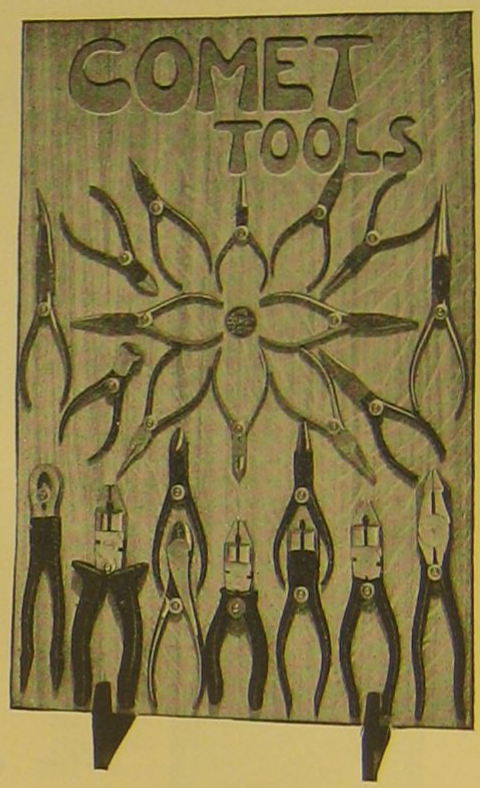
(Wrenches are of foreign origin.)

COMET
Plier Display Board

Carries 23 Pliers, mounted as illustrated, supplied FREE to purchasers of two sets.

Price 87/– Subject to discount.

(Pliers are of foreign origin)



"COMET" PLIER DISPLAY BOARD

"COMET" SCREWDRIVER DISPLAY BOARD

COMET
Automatic and Ratchet Screwdrivers Display Board

Carries 13 assorted Screw Drivers, mounted as illustrated, supplied FREE to purchasers of the complete set.

Price, complete £4 1 0

Subject to discount.

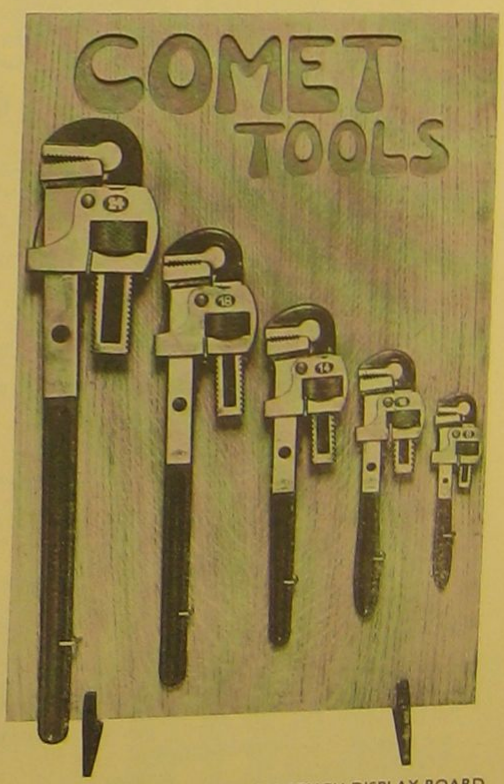
(Screwdrivers are of foreign origin)

COMET
"Stillson" Pattern Wrench Display Board

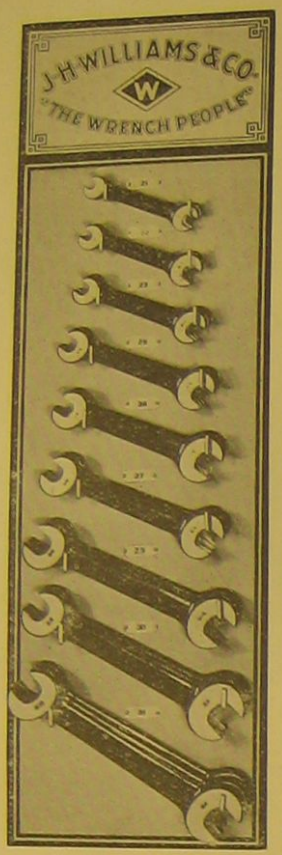
Carries 1 each Wrenches, mounted as illustrated, supplied FREE to purchasers of the following assortments.:— **Two,** 6 ins.: **Four** 8 ins.: **Four** 10 ins.: **Four** 14 ins.: **Three** 18 ins. and **One** 24 ins. Wrenches.

Price, £3 10 6 Subject to discount.

(Wrenches are of foreign origin).



COMET "STILLSON" PATTERN WRENCH DISPLAY BOARD



Williams Wrench Display Board

(Made in U.S.A.)

An attractive metal faced board, enamelled in three colours and carrying a **set of three each** of the following Williams Double End Wrenches:—

No. 21	$\frac{1}{8} \times \frac{3}{16}$
No. 22	$\frac{1}{8} \times \frac{1}{4}$
No. 23	$\frac{3}{16} \times \frac{1}{4}$
No. 25	$\frac{1}{4} \times \frac{5}{16}$
No. 26	$\frac{1}{4} \times \frac{3}{8}$
No. 27	$\frac{5}{16} \times \frac{3}{8}$
No. 29	$\frac{3}{8} \times \frac{7}{16}$
No. 30	$\frac{3}{8} \times \frac{1}{2}$
No. 31	$\frac{7}{16} \times \frac{1}{2}$

This useful SALES HELP, FREE to purchasers of two sets of wrenches, as above

Carborundum and Aloxite Brand Grinding Wheels Display Stand

This very attractive display is worthy of a place in any shop, and is loaned to the purchaser of Carborundum and Aloxite Brand Wheels listed below. A complete set of wood bushes is supplied with each display assortment:—

Carborundum Wheels

Quantity.	Size, ins.	Grit and Grade.
1	$4 \times \frac{3}{4} \times \frac{1}{2}$	100 H
1	$4 \times 1 \times \frac{1}{2}$	80 J
1	$5 \times 1 \times \frac{1}{2}$	80 J
1	$5 \times 1\frac{1}{4} \times \frac{1}{2}$	80 J
1	$6 \times 1 \times \frac{3}{4}$	80 J
1	$6 \times 1\frac{1}{4} \times \frac{3}{4}$	80 J

Aloxite Wheels

1	$4 \times \frac{3}{4} \times \frac{1}{2}$	100 H
1	$4 \times 1 \times \frac{1}{2}$	80 H
1	$5 \times 1 \times \frac{1}{2}$	80 J
1	$5 \times 1\frac{1}{4} \times \frac{1}{2}$	60 H
1	$6 \times 1 \times \frac{3}{4}$	80 H
1	$6 \times 1\frac{1}{4} \times \frac{3}{4}$	60 H

Wood Bushes

Quantity.	Outside, in.	Inside, in.	Length, in.
2	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
4	$\frac{1}{2}$	$\frac{3}{8}$	1

Quantity	Outside, in.	Inside, in.	Length, in
2	$\frac{1}{2}$	$\frac{3}{8}$	$1\frac{1}{4}$
2	$\frac{3}{4}$	$\frac{1}{2}$	1
2	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{4}$

Price on request

Stanley Saw Set Counter Display

This comprises Saw Set each Nos. 422, 432, 442, and 42 for mounting on stand supplied.

Price, complete **18/3**

Subject to discount.

Showboard of "King Dick" Spanners

An attractive metal showboard for window display, supplied FREE of charge, holds one each Nos. 0, 1, and 2 "King Dick" Spanners.

Rabone's Displays

No. 4. A coloured tin showcard illustrating Rules, Levels, Tapes and Squares. Supplied without charge.

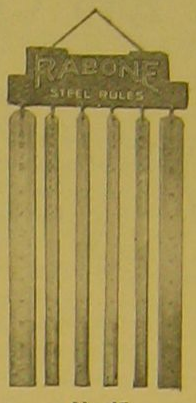
No. 20

A coloured and embossed card board show card holding a No. 360 Stiff Flex Rule, 6ft. in bakelite case.

Price, complete, 3/–
(Subject to discount)

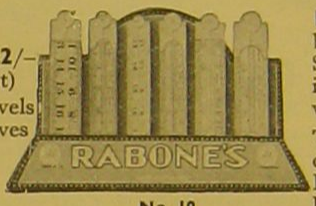
No. 7

No. 7. Polished mahogany Adjustable Stand with name in gold and colour. Supplied with an order for three long levels. Holds sizes 18 in. to 48 ins.
The illustration shows 1 each level and plumb:—
No. 100—24 ins. long.
No. 101—24 ins. ,,
No. 105. 27 ins. ,,
Price, complete as shown 22/–
(Subject to discount)
other selections of levels may be had as alternatives



No. 17

No. 17. Coloured tin hanger for holding 6 steel Rules up to 12" long.
The selection illustrated includes 1 each Steel Rule.
No. 11, 12 ins.
No. 34C, 12 ins.
No. 11A, 12ins.
No. 13A, 12ins.
No. 34A, 12 ins.
No. 42, 12 ins.
Price complete 12/–
(Subject to discount)



No. 19

No. 10. Is a cardboard and wood Showstand for holding 2ft. and 3ft. Boxwood Rules.
The set illustrated comprises one each Four-fold Boxwood Rules as follows:—
No. 1173, 2 ft.: **No. 2547**, 2 ft.
No. 1380, 2 ft.: **No. 1163**, 2 ft.
No. 1167, 2 ft.: **No. 1377**, 2 ft.
Price, complete, 10/1
(Subject to discount)

No. 370

No. 370. This display box has a special partition for showing one rule extended.
Contains 6 Spring Flex Rules No. 370, 6 ft.
Price, complete, 21/–
(Subject to discount)

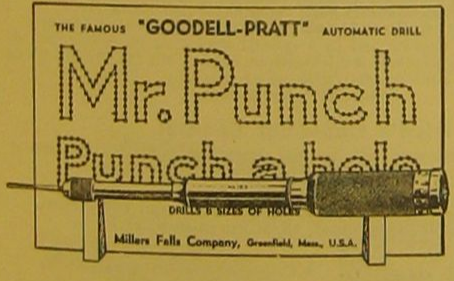
No. 299

No. 299. This display box has 6 spring measures, No. 299, steel tapes, ¼ in. wide, marked ins. in 8ths, one side, metres into m/m. other side, 3 ft. or 1 metre long.
Price complete, 18/–
(Subject to discount)

No. 8A

No. 8A. This stand is for displaying two woven or steel tapes.
The tapes shown in the illustration are one each:—
No. 401. 66ft. metallic woven measuring Tape.
Price ... 14/–
No. 5151. 50ft. Steel Tape, in bakelite case.
Price ... 15/–
Both prices subject to discount.

There are other Rabone Displays available. Particulars on request


THE FAMOUS "GOODELL-PRATT" AUTOMATIC DRILL
Mr. Punch
Punch a hole
DRILLS 8 SIZES OF HOLES
Millers Falls Company, Greenfield, Mass., U.S.A.

Goodell-Pratt Mr. Punch Automatic Drill Display (Made in U.S.A.)

This display designed for standing on the counter or in the window, measures 10½ ins. long by 6¼ ins. wide. It is attractive in the plain wood with black lettering. Holds one No. 185 Automatic Drill.

Gilbow Engineers' Cold Chisel Display (British Made)

This attractive showboard is supplied on loan without charge with an order for the following items:—

Flat Chisels. **2 each**
No. 33A, 5½ × ⅜ × 7/16 in. cut.
No. 33B, 6½ × 7/16 × ½ in. cut.
No. 33C, 7 × ½ × ⅝ in. cut.
No. 33D, 7½ × ⅝ × ¾ in. cut.
No. 33G, 8 × ¾ × 1 in. cut.
No. 33J, 12 × ¾ × 1 in. cut.
No. 33K, 8½ × 1 × 1¼ in. cut.
Cross Cut (Cape) Chisels. **2 each**
No. 34C, 7 × ⅝ × ¾ in. point.
Pin Punches. **2 each**
No. 37A, 6 × ⅜ × ⅜ in. point.
No. 37B, 6 × ½ × 7/16 in. point.
No. 37C, 6 × ⅝ × ¾ in. point.
No. 37D, 8 × ⅝ × 7/16 in. point.
Centre Punches. **2 each**
No. 38A, 4½ × ⅜ in.

Total Price, £2 11 0 Subject to discount.

The metal display stand illustrated is supplied free with an order for the following assortment of Gilbow Star Drills:—
Four 8 × ⅜ in. No. 50A
Six 9 × ½ in. No. 50B
Six 10 × ⅝ in. No. 50C
Four 11 × ¾ in. No. 50D
Two 12 × ⅞ in. No. 50E
Two 12 × 1 in. No. 50F
Price £1 18 2
(Subject to discount)

Gilbow Star Drills Display

(British Made)

Rice's 20th Century Machinery Finish (Made in U.S.A.)

A Good Tool should Look Good.

A Machine Tool may be well designed, constructed of best materials, and with the highest workmanship, as far as the essential—**and mostly hidden**—parts are concerned; but it will never get full credit for these excellent qualities if the general finish is imperfect. Many machines are libelled by their appearance because this fact is not realised. If you build good tools, do them justice, and let them **look the part.**

Rice's Machinery Paints are specially adapted to give the best finish at a reasonable cost, and details are given below of different styles, and also the preparations for securing the perfect groundwork which is so essential to the highest results.

RICES 20TH CENTURY
FINISHES for MACHINERY
EGG SHELL GLOSS LACQUER
UNITED STATES GUTTA PERCHA PAINT COMPANY
B. & S. SPECIAL

The Foundation

Rice's Adamant Cement

This is a metallic compound in the form of an extremely fine dry powder. It is mixed with water to a thick paste, and used to stop leaks, fill blowholes in castings, etc. After a few hours' drying, it becomes as hard as iron, absolutely insoluble in oil or water and proof against intense heat. It is easily applied, matches the Metal in colour, and will not chip out. It is invaluable for steam and water fitting, etc.

Price, 1/6 per lb.

Rice's Improved Iron Filler

This is easily and quickly applied, dries in about an hour, and has unrivalled tenacity and adhesiveness. It stands great heat and hard usage, is economical in use, and can readily be brought to a smooth and uniform surface. Black or seal brown.

Crucial test for Iron Filler.—Take a strip of sandpaper or emery cloth, 6 × 2 inches, and knife on the iron filler to a uniform surface. Let it dry over night, then see if it pulverises or chips off when sharply hit on edge of table, desk, or window-sill. This proves its tenacity or lack of it. If the filler which you are using will not stand this test **try the above.**

Price, 10/6 per gallon.*

Rice's Intermediate Surfacer

This is a new preparation in liquid form ready for the brush. It causes all unsightly brush marks and streaks to disappear, is easily applied and dries hard in three or four hours. It should be used over **Rice's Improved Iron Filler,** and effectually fills the pores, stops all suction, and makes a smooth, impervious surface for the finishing coat.

It is particularly desirable as a groundwork for Rice's Egg Shell Gloss Lacquer, and allows a superb finish to be secured; but can be dispensed with for ordinary work. Made in various colours to suit top coat.

Price, 15/6 per gallon.*

Rice's Machinery Paint (Liquid)

For painting castings and metal fixtures, etc., exposed to weather. It will resist rust and dries in two hours, covering capacity about 650 square feet to the gallon.

Price, 13/9 per gallon.*

The Completion

Rice's One-Coat Flat Finish

This is a lustreless oil-proof paint, of heavy body and great covering capacity. It is ready for use, dries in thirty minutes, and does not rub off. It is made in dark steel and black.

Price, 18/– per gallon.*

Rice's Paint Thinner

Is made specially for thinning the steel-colour paints to obtain a dead or flat finish when dry. It is superior to any mixture of oil, japan, and turpentine, as it is uniform, ensures a standing shade, dries quickly, and saves waste. It pays to use this Thinner.

Price, 6/3 per gallon.*

Rice's Machinery Varnish

This Varnish is well adapted for use as a finishing coat, and suits those requiring a high gloss. It is pale in colour, heavy in body, and dries in a few hours.

Price, 10/6 per gallon.*

Rice's Egg Shell Gloss Enamel

Is an **oil-proof** lacquer, commonly known as the "New American Finish." It is supplied ready for use, dries dust-proof in ten minutes, and hard in half an hour. When applied on a properly prepared ground, a single coat makes a clean, hard, and durable finish. It is made in black, dark steel blue, maroon, and bronze green. The effect produced is a peculiar partial gloss which is very fashionable and attractive.

Price, 21/– per gallon* for all shades except Bronze Green.

This lacquer can also be had in a special shade known as **Brown & Sharpe Lacquer,** which is steel-bluish in colour, of a tint designed not to show oil marks such as often disfigure a machine.

Price, 21/– per gallon.*

Rice's One-Coat Enamel

Dust, oil, and rust-proof; this enamel dries with a hard high gloss in from three to six hours.

Price, per Gallon.*

Black, 12/6; Royal Blue, 16/9; Medium Green, Ivy Green, and Light Steel, 15/6; Vermilion, 23/–

New Finishing Paint. Colour, Standard Machine Tool Grey Finish. ... ... **Price, 25/– per gallon.***

*The gallons here given are to U.S. Standard, which has a content of 231 cu. ins. and must not be confused with the Imperial gallon of 277 cu. ins.

The above preparations cover the usual range of machine tool painting, but many other styles and colours can be had if desired.

Rice's Mill White (Made in U.S.A.)

This has met with much appreciation for use on the walls and ceilings of factories and workshops. Clean, white interiors reflect the light, and so make for efficiency, while saving artificial illumination, and thus reducing costs.

Whitewash is cheap, but unsatisfactory. It soon becomes dusty and dirty, flakes off to the detriment of plant and product, and causes loss of time and inconvenience through necessarily frequent renewals.

The use of ordinary paint is greatly restricted by its cost.

Rice's Mill White is reasonable in cost. It has remarkable covering power, so is cheap to apply. It dries hard and glossy giving no lodgment to dust.

It can be washed and cleaned when necessary (a more sanitary proceeding than covering the dirt over with a layer of whitewash).

It will not chip, crack, or flake off; in short it is ideal for interiors; and another style can be had equally good for outdoor work.

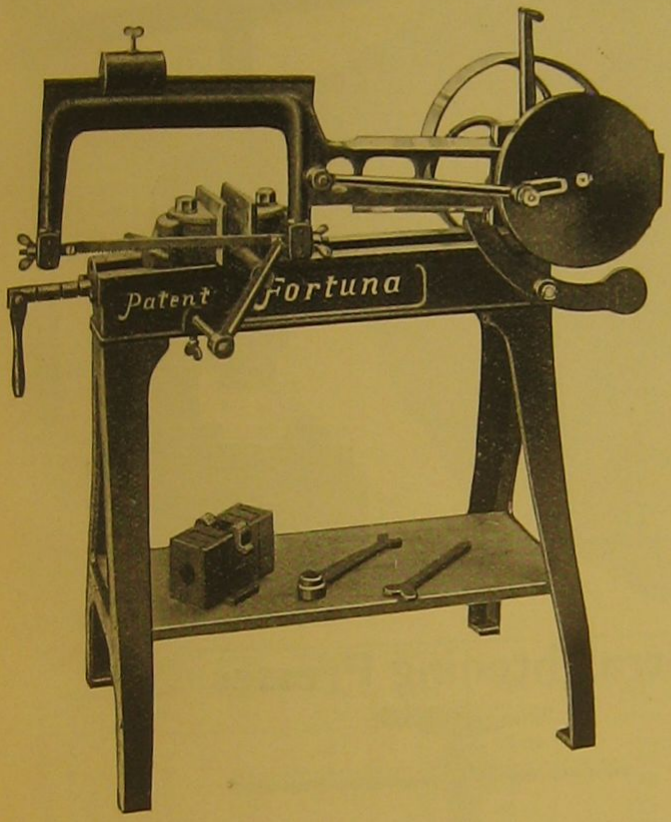
Price, 25/– per gallon* (in tins).

* The gallons here given are to U.S. Standard, which has a content of 231 cubic inches, and must not be confused with the Imperial gallon of 277 cubic inches.

Further particulars on application.

POWER HACK SAW MACHINES

The New "Fortuna" Power Hack Saw (British Made)



The Saw Frame works on accurately machined, adjustable V-slide bearings, giving the saw blade a perfect and steady guide. A dead square cut is thus obtained even after years of wear **The Saw Blade can be used on its full length** regardless of the size of work to be sawn, as the length of the stroke is adjustable from 3 to 8 inches.

The machine stops automatically after completion of cut.

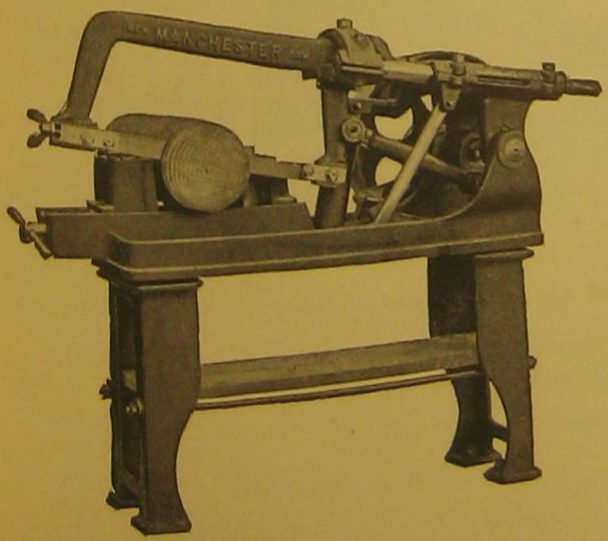
The Universal Vice consists of two machined carriers, which are perfectly guided in the bed of the machine, independent of the vice spindle. Two solid vice jaws are mounted and fastened in an original manner on the top of the carriers.

The Vice Spindle is of special design. A right- and left-hand thread combined with a special arrangement **automatically centres all classes of work in proper relation to the saw's reciprocation.**

Drive by electric motor. This machine can also be arranged with special electric drive by motor mounted on frame. Price on application.

Cutting Capacity ...	ins.	6×6	8×8
Length of Saw Blade ...	,,	12	14
Stroke Adjustable, from	,,	3 to 8	2 to 4
Size of Pulley	,,	12½×2¼	14×2¼
Speed of Pulley	r.p.m.	85 to 90	100 to 110
Floor Space required ...	ins.	48×20	48×20
Net Weight, approximate	lbs.	188	188

New Manchester Hack Saw Machine (British Made)



The "New Manchester" is a light, strongly built, well- finished machine that can be relied upon to give trouble free service. Main bearing is of phospor bronze. Crankshaft is 1¼ inches diameter.

Saw Frame—Rigidly guided by two square steel slide bars placed diagonally for strength, and to maintain permanent alignment over a long period of time.

Pressure—The patent "cutting on a corner" method dispenses with weights and ensures straight cutting.

Automatic Relief on the return stroke is obtained by an adjustable oil dashpot in conjunction with the angular setting of the slides.

Tension—The blade is tensioned by a wing screw.

Tee-slotted Table cast integral with bed of machine.

Vice—Strong screw vice, with swivelling jaws for mitring 4 in. stock at 45° is supplied as standard.

Drive by single pulley, fitted with clutch.

Automatic Knock Off operates at finish of cut.

Cutting Capacity	ins.	6×6
Length of Saw Blade	,,	14
Size of Table ...	,,	18×4
Size of Pulley ...	,,	14×2¼
Speed of Pulley ...	r.p.m.	100
Net Weight ...	lbs.	280
Price		**£8 10 0**

This Machine can be supplied for Motor Drive. Particulars on application.

FLY AND STRAIGHTENING PRESSES

Fly Presses (British Made)

These Presses are made to new designs and incorporate:—

Increased weight and strength where required.

Unbreakable Steel Fly.

The Ram is of steel and the base of the press is machined all over.

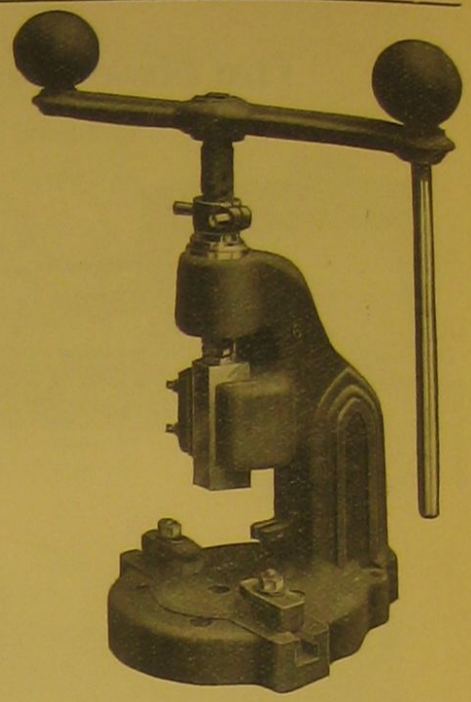
Two ball weights are supplied with Presses Nos. 5 and 6.

One ball weight with each other size.

Dimensions

Press No.	Size of Steel Screw Inches	Size of Blank Inches	Distance Base to Guide Inches	Distance Centre of Bolt to Back Inches
2	$1\frac{7}{16}$	2	$5\frac{1}{4}$	3
3	$1\frac{3}{4}$	3	$6\frac{1}{4}$	$3\frac{1}{2}$
4	$1\frac{3}{4}$	4	$7\frac{1}{4}$	$4\frac{1}{2}$
5	$1\frac{7}{8}$	5	$7\frac{3}{4}$	$5\frac{1}{2}$
6	$2\frac{1}{8}$	6	$8\frac{3}{4}$	6

Prices on application

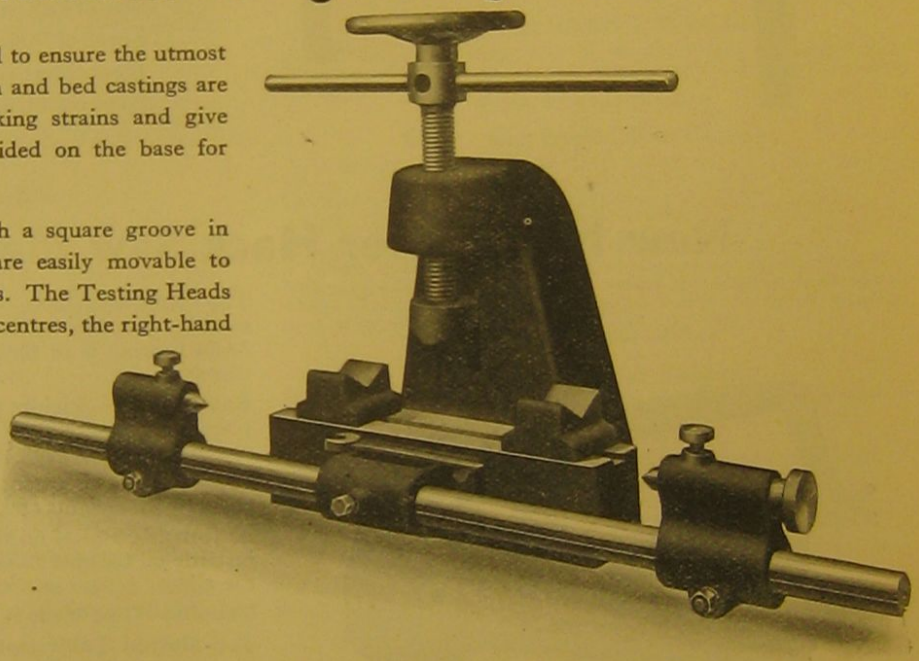


Nos. 5 and 6 Presses

Churchill Redman Straightening Presses (British Made)

These **Presses** are carefully designed to ensure the utmost strength and serviceability. The arm and bed castings are heavily reinforced to resist all working strains and give exceptional rigidity. Lugs are provided on the base for clamping presses to work bench.

Beds are accurately planed, with a square groove in which adjustable solid vee blocks are easily movable to accommodate work of various lengths. The Testing Heads are fitted with hardened and ground centres, the right-hand head being arranged with a quick adjusting screw for fixing and removing work. A large diameter shaft carries the heads, which are made adjustable and kept in perfect alignment through the medium of a key running in a deep groove in the shaft. The heads can be locked in any position on the shaft.



The bracket supporting the centre shaft may be used as a steady rest or hand support in holding chalk for testing the work.

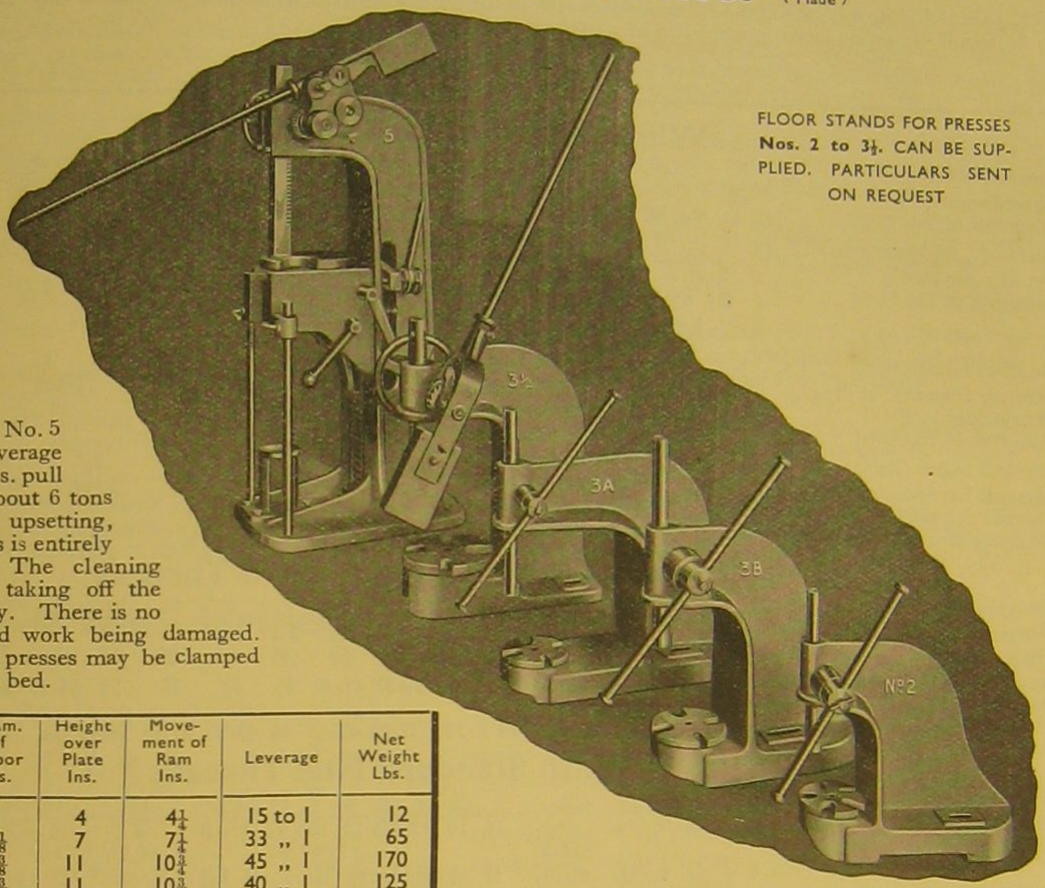
Pressure Screws of large diameter are made of 30–40 carbon O.H. steel with standard Acme thread.

The Pressure Block is of machinery steel, case-hardened, and kept square with the work by a spigot running in a slot on the arm.

Dimensions

Size, Nos.		**2**	**3**
Capacity, maximum diameter of work	ins.	$2\frac{1}{2}$	$2\frac{1}{2}$
Distance between centres, maximum	,,	40	53
Screw, Acme pitch and diameter	,,	4—$1\frac{3}{4}$	4—2
Lever, diameter and length	,,	1—24	1—36
Length of Bed	,,	20	34
Clearance between centre of screw and arm	,,	3	$5\frac{1}{4}$
Net Weight	lbs.	310	620

Greenerd Pattern Arbor Presses (British Made)



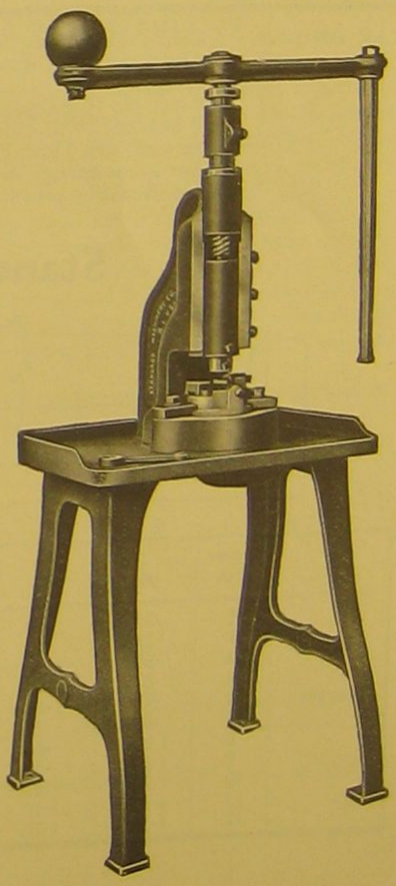
FLOOR STANDS FOR PRESSES **Nos. 2 to 3½.** CAN BE SUPPLIED. PARTICULARS SENT ON REQUEST

These Presses are very powerful. The pinions and rams are made of steel with well-proportioned teeth, having an angular pressure of 22½ degrees. Pressure is direct by lever on end of pinion shaft on the four small sizes; No. 3½ is simple leverage, with a ratchet and pawl. No. 5 is a compound leverage press and with 150 lbs. pull on the lever gives about 6 tons pressure. Marring, upsetting, or springing of arbors is entirely done away with. The cleaning out of centres and taking off the dogs is not necessary. There is no possibility of finished work being damaged. The smaller sizes of presses may be clamped to the end of a lathe bed.

No.	Takes Work Diam. Ins.	Diam. of Arbor Ins.	Height over Plate Ins.	Movement of Ram Ins.	Leverage	Net Weight Lbs.
1	5	1	4	4¼	15 to 1	12
2	8	1⅛	7	7¼	33 ,, 1	65
3 A	24	1⅜	11	10¾	45 ,, 1	170
3 B	12	1⅜	11	10¾	40 ,, 1	125
3½	18	3	15	13⅜	50 ,, 1	350
5	20	4	21½	17¼	38 ,, 1 85 ,, 1	1020

Prices on application

No. 1 Hand Screw Press (Made in U.S.A.)



This Screw Press has many advantages that will be readily appreciated by any one familiar with this class of tool.

The nut which receives the most wear is made in a separate casting, and bolted to the Press body. These nuts are interchangeable and can be replaced at any time when worn out.

The slide is extra long, and the bearing surfaces are hand scraped to ensure perfect fit.

The ways for the slide are solid with the Press, which we consider a valuable improvement.

The arrangement of the stop nut, as will be seen from the illustration, is another important change.

Capacity.—The Press is capable of cutting blanks 1½ inches diameter up to $\frac{1}{16}$ inch high brass.

Dimensions

Height over all	61 inches
,, of table	**31** ,,
Size of table	28×19 ,,
Length of stroke	4⅛ ,,
Greatest distance between slide and platen	7⅛ ,,
Weight, net	350 lbs.
,, ,, without table	300 ,,
Floor space occupied	19×28 inches
Price, on table	£
,, without table	£

Die Holder and Chuck extra.

USEFUL INFORMATION AND DATA

We are including on this and the following pages tables and other information and data for your handy reference and which will be found of service in the normal run of workshop practice.

TAPPING SIZES

Whitworth Standard Bolt Threads

Diameter, Nominal Size ins.	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16
Threads per inch ...	60	48	40	32	24	24	20	18	16	14	12	12	11	11	10	10	9	9
Diameter of Tap Drill ...	No. 56	No. 48	No. 40	No. 31	No. 28	11/64	5 m/m.	1/4	5/16	23/64	13/32	15/32	17/32	37/64	41/64	45/64	3/4	13/16

Diameter, Nominal Size ins.	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/4	2 1/2	2 3/4	3	3 1/4
Threads per inch ...	8	7	7	6	6	5	5	4 1/2	4 1/2	4	4	3 1/2	3 1/2	3 1/4
Diameter of Tap Drill ...	55/64	24·5 m/m.	1 3/32	1 3/16	1 5/16	35·5 m/m.	1 33/64	1 5/8	1 3/4	1 31/32	2 7/32	2 7/16	68 m/m.	74 m/m.

Whitworth Standard Pipe Threads

Nominal Inside Diam. ... ins.	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4
External Diameter of Pipe ,,	·383	·518	·656	·825	·902	1·041	1·189	1·309	1·650	1·882	2·116
Threads per inch ...	28	19	19	14	14	14	14	11	11	11	11
Diameter of Tap Drill ... ,,	11/32	15/32	19/32	3/4 or 19 m/m.	53/64 or 21 m/m.	31/32	1 7/64	1 7/32	1 35/64	1 47/64	2 1/32

Nominal Inside Diameter ... ... ins.	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4
External Diameter of Pipe ... ... ,,	2·347	2·587	2·960	3·210	3·460	3·700	3·950	4·200	4·450
Threads per inch	11	11	11	11	11	11	11	11	11
Diameter of Tap Drill ... ... ,,	2 1/4	2 1/2	2 7/8	3 9/64	3 25/64	3 19/32	3 27/32	4 3/32	4 11/32

British Association Standard Threads

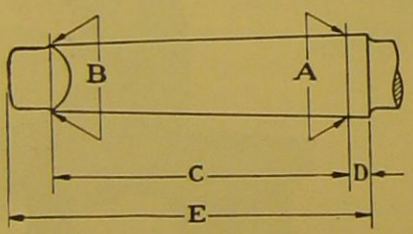
Designating No....	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Diameter ... ... m/m.	6·0	5·3	4·7	4·1	3·6	3·2	2·8	2·5	2·2	1·9	1·7	1·5	1·3	1·2	1·0	·90	·79
Pitch ... ... ,,	1·0	·90	·81	·73	·66	·59	·53	·48	·43	·39	·35	·31	·28	·25	·23	·21	·19
Diameter of Tap Drill: Steel ... Nos.	8-9	15-16	23	28	31	36-37	41-42	45	48	51	53	54-55	61	63	69	71	74
Diameter of Tap Drill: Cast Iron, Brass or Ebonite ... ... Nos.	10	16-17	24-25	29	32	37-38	42-43	46	49-50	52-53	54-55	56	62	64	70	71	74

British Standard Fine Threads

Diameter, Nominal Size	7/32	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	2	2 1/4	2 1/2	2 3/4	3 ins:
Threads per inch ...	28	26	22	20	18	16	16	14	14	12	12	11	10	9	9	8	8	8	7	7	6	6	6	5
Diameter of Tap Drill	No. 15	No. 5	G	O	3/8	27/64	12.5 m/m.	35/64	39/64	21/32	23/32	25/32	57/64	1	1 1/8	1 15/64	34.5 m/m.	1 31/64	1 19/32	1 27/32	2 1/16	2 5/16	2 9/16	70 m/m.

TAP DRILLS. A simple rule for ascertaining the size of tap drill required and which in many cases is good enough is:—
Subtract the pitch of one thread from the diameter of the tap.
Example:—
A 3/8 inch tap 16 threads, would be 3/8 minus 1/16 = 5/16 in. drill.
A 3/4 inch tap 10 threads, would be 3/4 minus 1/10 = 75/100 — 10/100 or 0·75—0·10 = 65/100 or 0.65, or a little over 5/8 of an inch, so a 5/8 inch drill will do nicely. With a 1 inch tap we have 1—1/8 = 7/8 in. drill, which is a little large but leaves enough thread for most cases.
A tap should be between 0·002 and 0·003 inch large for clearance between top and bottom of threads.

Standard Taper Dimensions



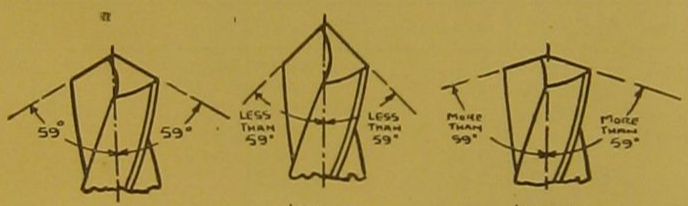
	Taper No.	A	B	C	D	E
Jarno	2	·250	·20	1	1/8	1 1/8
	3	·375	·30	1 1/2	1/8	1 5/8
	4	·500	·40	2	3/16	2 3/16
	5	·625	·50	2 1/2	3/16	2 11/16
	6	·750	·60	3	3/16	3 3/16
	7	·875	·70	3 1/2	3/16	3 11/16
	8	1·000	·80	4	3/16	4 3/16
	9	1·125	·90	4 1/2	3/16	4 11/16
	10	1·250	1·00	5	1/4	5 1/4
	11	1·375	1·10	5 1/2	1/4	5 3/4
	12	1·500	1·20	6	1/4	6 1/4

	Taper No.	A	B	C	D	E
Morse Standard Shank	0	·3561	·252	2	1/8	2 11/32
	1	·475	·369	2 1/8	1/8	2 9/16
	2	·700	·572	2 9/16	3/16	3 1/8
	3	·938	·778	3 3/16	3/16	3 7/8
	4	1·231	1·020	4 1/16	1/4	4 7/8
	5	1·748	1·475	5 3/16	1/4	6 1/8
Brown & Sharpe	1	·239	·200	15/16	3/32	1 9/32
	2	·299	·250	1 3/16	3/32	1 19/32
	3	·395	·312	2	3/32	2 15/32
	4	·420	·350	1 11/16	3/32	2 3/16
	5	·523	·450	1 3/4	3/32	2 9/32
	6	·599	·500	2 3/8	3/32	2 31/32
	7	·725	·600	3	3/32	3 3/8
	8	·898	·750	3 9/16	1/8	4 1/4
	9	1·067	·900	4	1/8	4 3/4
	10	1·289	1·0446	5 11/16	1/8	6 17/32
	11	1·531	1·250	6 3/4	1/8	7 13/32
	12	1·797	1·500	7 1/8	1/8	8 1/16

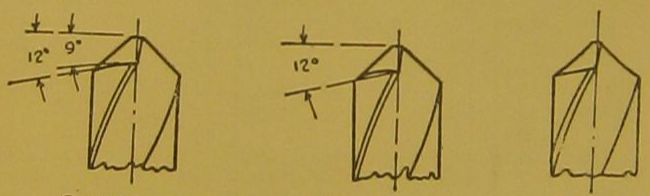
Hints on the use of Drills

- The correct speed and feed should be used, suitable to the quality of the Drill, the class of work, and the method of holding the Drill to do the work.
- When a lubricant is used—and this is necessary on most classes of work—care should be taken to ensure that the lubricant reaches the point of the Drill. (See Table of Lubricants given on later page.)
- The work should be as rigid as possible, and the Drill Spindle should have no end play.
- When the Drill is in need of re-grinding, great care should be exercised to ensure that the correct point-angles are ground on the Drill.
- When driving the Drill into its socket, use a hammer made of some soft material. It should be ascertained that there is a good fit between the taper shank of the Drill and the sleeve or socket, otherwise the tang of the Drill may break.
- The chuck in which Straight Shank Drills are held must be of good quality. If the Drills slip in the chuck, and the feed is automatic, the breakage of the Drill is inevitable.
- Remember that you can obtain Drills which have been specially designed to drill various metals and materials, such as Brass, Aluminium, Bakelite, etc., etc.
- It is also possible to obtain Drills which are made for certain classes of work, such as Tough Temper Drills, for constructional work, Crankshaft Drills, etc.
- Use three or four fluted Drills, when opening out existing holes, or cored holes. Two fluted Drills are not suitable for this purpose.
- When drilling deep holes, care must be taken to see that the lubricant reaches the point of the Drill, and that the flutes of the Drill are not choked with chips.
- When difficulty is experienced in drilling small holes in hard material, use Drills which are as short as possible.
- The Speeds and Feeds given in later pages are only approximate, and in many instances it is possible to greatly increase these, due to local conditions.

Correct Grinding Ensures Efficiency



Correct. | Incorrect. Too acute angle. | Incorrect. Too obtuse angle.



Correct. Increasing clearance behind Cutting Edges. | Incorrect. Lack of clearance behind Cutting Edges. | Incorrect. Wrong contour leaving Cutting Edges too thin.

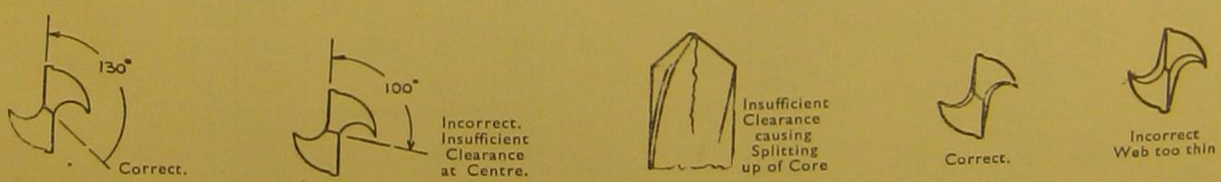
There are numerous inexpensive gauges made which will assist in the production of the correct angles. It will be obvious to the user that any departure from the correct angles will result in a shorter life for the drills and also inaccuracy of the holes. When Twist Drills are ground in a correct manner the maximum speeds and feeds appertaining to the particular job upon which they are being used can be attained.

Point Grinding

Either grind Drills quite dry or under a gush of water. The halfway method of having a trickle of water is definitely to be shunned as minute cracks are likely to be set up owing to local heating and quenching. The common practice of dipping the tool into water immediately after grinding is also ill-advised.

Most Drills are made nowadays with an increasingly thicker web or core towards the shank. After about a third of the Drill's useful length is ground away, this fact becomes apparent and it is then necessary to thin the core artificially. A good method of effecting this is with the aid of a shaped grinding wheel which is half the width of the flute.

It is advisable, whenever possible, to use an up-to-date Grinding Machine.



Correct. | Incorrect. Insufficient Clearance at Centre. | Insufficient Clearance causing Splitting up of Core | Correct. | Incorrect Web too thin

Clearance Drills

Clearance Drills vary according to the nature of the work. $\frac{1}{64}$ inch over the nominal size may be regarded as fine clearance. $\frac{1}{32}$ inch over the nominal size may be regarded as moderate clearance. $\frac{1}{16}$ inch over the nominal size may be regarded as heavy clearance.

Clients are strongly advised to specify the actual size required to avoid mistakes. For example—"$\frac{5}{8}$ inch Clearance Drill" should read "$\frac{41}{64}$" $\frac{21}{32}$", or $\frac{11}{16}$"" as the case might be.

C1

USEFUL INFORMATION ON TWIST DRILLS

Speeds and Feeds of Twist Drills

Material		High Speed Twist Drills			Carbon Twist Drills		
		Medium Cast Iron and Mild Steel	Hard Tool and Alloy Steel	Brass, Bronze and Alum'm	Medium Cast Iron and Mild Steel	Hard Tool and Alloy Steel	Brass, Bronze and Alum'm
Cutting Speed per Min.		100 ft.	60 ft.	200 ft.	40 ft.	30 ft.	85 ft.
Drill Dia. In.	Feed per Rev. In.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
1/32	·001	12200	7300	24400	4900	3600	10300
1/16	·002	6100	3600	12200	2400	1830	5200
3/32	·0025	4000	2400	8100	1630	1220	3400
1/8	·003	3000	1830	6100	1220	920	2600
5/32	·004	2400	1470	4800	980	730	2070
3/16	·005	2000	1220	4000	810	610	1730
13/64	·0055	1740	1050	3500	700	520	1480
7/32	·006	1520	920	3000	610	460	1300
15/64	·0065	1360	810	2700	540	400	1150
1/4	·007	1220	730	2400	490	367	1040
17/64	·0075	1110	670	2200	440	334	940
9/32	·008	1020	610	2000	400	306	860
19/64	·009	870	520	1740	350	262	740
5/16	·010	760	460	1520	306	230	650
21/64	·0105	680	400	1360	272	204	570
11/32	·011	610	367	1220	244	183	520
23/64	·0115	550	333	1110	222	167	472

Material		High Speed Twist Drills			Carbon Twist Drills		
		Medium Cast Iron and Mild Steel	Hard Tool and Alloy Steel	Brass, Bronze and Alum'm	Medium Cast Iron and Mild Steel	Hard Tool and Alloy Steel	Brass, Bronze and Alum'm
Cutting Speed per Min.		100 ft.	60 ft.	200 ft.	40 ft.	30 ft.	85 ft.
Drill Dia. In.	Feed per Rev. In.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
3/4	·012	510	306	1020	203	153	433
13/16	·0125	470	284	940	190	142	400
7/8	·013	430	262	870	175	131	370
15/16	·0135	400	244	810	163	122	350
1	·014	380	230	760	153	115	325
1 1/8	·015	340	204	680	136	102	290
1 1/4	·016	306	183	610	122	92	260
1 3/8	·016	278	167	550	110	83	235
1 1/2	·016	255	153	510	102	76	216
1 5/8	·016	235	140	470	94	70	200
1 3/4	·016	218	130	430	87	65	185
1 7/8	·016	204	122	400	80	61	173
2	·016	190	115	380	76	57	162
2 1/4	·016	170	102	340	68	51	144
2 1/2	·016	153	92	306	60	46	130
2 3/4	·016	140	83	278	56	42	118
3	·016	127	76	254	50	38	108

Decimal Equivalents of Drill Sizes

m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	Gge.	D. Eq.
		80	·0135			58	·0420	2·15			·0846	3·2			·1260	4·35			·1713
		79	·0145			57	·0430			44	·0860	3·25			·1279		11/64		·1719
	1/64		·0156	1·10			·0433	2·2			·0866			30	·1285			17	·1730
·4			·0157	1·15			·0453					3·3			·1299	4·4			·1732
		78	·0160					2·25			·0886	3·35			·1319	4·45			·1752
·45			·0177			56	·0465			43	·0890	3·4			·1339			16	·1770
		77	·0180		3/64		·0469	2·3			·0905					4·5			·1772
				1·2			·0472	2·35			·0925	3·45			·1358	4·55			·1791
·5			·0197	1·25			·0492			42	·0935			29	·1360				
		76	·0200	1·3			·0512		3/32		·0937	3·5			·1378			15	·1800
		75	·0210			55	·0520	2·4			·0945	3·55			·1398	4·6			·1811
·55			·0216	1·35			·0531							28	·1405			14	·1820
		74	·0225							41	·0960		9/64		·1406	4·65			·1831
·6			·0236			54	·0550	2·45			·0965	3·6			·1417	4·7		13	·1850
		73	·0240	1·4			·0551			40	·0980	3·65			·1437	4·75			·1870
				1·45			·0571	2·5			·0984			27	·1440		3/16		·1875
		72	·0250	1·5			·0591			39	·0995	3·7			·1457				
·65			·0256			53	·0595	2·55			·1004					4·8			·1890
		71	·0260	1·55			·0610			38	·1015			26	·1470			12	·1890
·7			·0275		1/16		·0625					3·75			·1476	4·85			·1909
		70	·0280					2·6			·1024			25	·1495			11	·1910
		69	·0292	1·6			·0630			37	·1040	3·8			·1496	4·9			·1929
·75			·0295			52	·0635	2·65			·1043	3·85			·1516				
				1·65			·0650	2·7			·1063			24	·1520			10	·1935
		68	·0310	1·7			·0669			36	·1065					4·95			·1949
	1/32		·0312			51	·0670	2·75			·1083	3·9			·1535			9	·1960
·8			·0315	1·75			·0689		7/64		·1094			23	·1540	5·00			·1968
		67	·0320			50	·0700					3·95			·1555				
		66	·0330							35	·1100		5/32		·1562	5·05			·1988
·85			·0335	1·8			·0709	2·8			·1102			22	·1570			8	·1990
		65	·0350	1·85			·0728			34	·1110	4·00			·1575	5·1			·2008
						49	·0730	2·85			·1122							7	·2010
·9			·0354	1·9			·0748			33	·1130			21	·1590	5·15			·2027
		64	·0360			48	·0760	2·9			·1142	4·05			·1595		13/64		·2031
		63	·0370	1·95			·0768			32	·1160			20	·1610			6	·2040
·95			·0374		5/64		·0781	2·95			·1161	4·1			·1614	5·2			·2047
		62	·0380			47	·0785					4·15			·1634			5	·2055
		61	·0390	2·00			·0787	3·00				4·2			·1653	5·25			·2067
1·00			·0394							31	·1181					5·3			·2087
				2·05				3·05			·1200							4	·2090
		60	·0400			46	·0807	3·1			·1201			19	·1660				
		59	·0410			45	·0810	3·15			·1220	4·25			·1673	5·35			·2106
1·05			·0413	2·1			·0820				·1240	4·3			·1693	5·4			·2126
							·0827		1/8		·1250			18	·1695			3	·2130

Continued on next page

HANDY REFERENCE TABLES

Decimal Equivalents of Drill Sizes—continued from previous page

m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	Gge.	D. Eq.	m/m.	Frac.	D. Eq.	m/m.	Frac.	D. Eq.	m/m.	Frac.	D. Eq.
5·45			·2146	8·00			·3150	10·75		·4232	15·75		·6201	20·6		·8110
5·5			·2165					10·8		·4252	15·8		·6221		13/16	·8125
5·55			·2185			O	·3160	10·9		·4291		5/8	·6250	20·7		·8150
	7/32		·2187	8·05			·3169	11·00		·4331	15·9		·6260	20·75		·8169
5·6			·2205	8·1			·3189	11·1		·4370	16·00		·6299	20·8		·8189
		2	·2210	8·15			·3209		7/16	·4375				20·9		·8228
5·65			·2224	8·2			·3228	11·2		·4409	16·1		·6339	21·00		·8268
5·7			·2244			P	·3230	11·25		·4429	16·2		·6378			
5·75			·2264	8·25			·3248	11·3		·4449	16·25		·6398		53/64	·8281
		I	·2280	8·3			·3268	11·4		·4488		41/64	·6406	21·1		·8307
5·8			·2283		21/64		·3281	11·5		·4528	16·3		·6417	21·2		·8346
5·85			·2303	8·35			·3287		29/64	·4531	16·4		·6457	21·25		·8366
5·9			·2323	8·4			·3307	11·6		·4567	16·5		·6496	21·3		·8386
		A	·2340			Q	·3320	11·7		·4606	16·6		·6535	21·4		·8425
5·95			·2343	8·45			·3327	11·75		·4626		21/32	·6562		27/32	·8437
	15/64		·2344	8·5			·3346	11·8		·4646	16·7		·6575	21·5		·8465
6·00			·2362	8·55			·3366	11·9		·4685	16·75		·6595	21·6		·8504
				8·6			·3386		15/32	·4687	16·8		·6614	21·7		·8543
		B	·2380			R	·3390	12·00		·4724	16·9		·6654	21·75		·8563
6·05			·2382	8·65			·3405				17·00		·6693	21·8		·8583
6·1			·2402	8·7			·3425	12·1		·4764					55/64	·8594
		C	·2420		11/32		·3437	12·2		·4803		43/64	·6719	21·9		·8622
		A	·2340	8·75			·3445	12·25		·4823	17·1		·6732	22·00		·8661
6·15			·2421	8·8			·3465	12·3		·4842	17·2		·6772			
6·2			·2441			S	·3480		31/64	·4844	17·25		·6791	22·1		·8701
		D	·2460	8·85			·3484	12·4		·4882	17·3		·6811	22·2		·8740
6·25			·2461	8·9			·3504	12·5		·4921	17·4		·6850		7/8	·8750
6·3			·2480	8·95			·3524	12·6		·4961		11/16	·6875	22·25		·8760
6·35	1/4	E	·2500	9·00			·3543	12·7	1/2	·5000	17·5		·6890	22·3		·8780
6·4			·2520					12·75		·5020	17·6		·6929	22·4		·8819
6·45			·2539	9·05			·3563	12·8		·5039	17·7		·6969	22·5		·8858
6·5			·2559			T	·3580	12·9		·5079	17·75		·6988	22·6		·8898
		F	·2570	9·1			·3583	13·00		·5118	17·8		·7008		57/64	·8906
6·55			·2579		23/64		·3594					45/64	·7031	22·7		·8937
6·6			·2598	9·15			·3602		33/64	·5156	17·9		·7047	22·75		·8957
		G	·2610	9·2			·3622	13·1		·5158	18·00		·7087	22·8		·8976
6·65			·2618	9·25			·3642	13·2		·5197				22·9		·9016
6·7			·2638	9·3			·3661	13·25		·5217	18·1		·7126	23·00		·9055
	17/64		·2656			U	·3680	13·3		·5236	18·2		·7165			
6·75			·2657	9·35			·3681	13·4		·5276	18·25		·7185		29/32	·9062
		H	·2660	9·4			·3701		17/32	·5312		23/32	·7187	23·1		·9095
6·8			·2677	9·45			·3720	13·5		·5315	18·3		·7205	23·2		·9134
6·85			·2697	9·5			·3740	13·6		·5354	18·4		·7244	23·25		·9154
6·9			·2716		3/8		·3750	13·7		·5394	18·5		·7283	23·3		·9173
		I	·2720	9·55			·3760	13·75		·5413	18·6		·7323	23·4		·9213
6·95			·2736			V	·3770	13·8		·5433		47/64	·7344		59/64	·9219
7·00			·2756	9·6			·3779		35/64	·5469	18·7		·7362	23·5		·9252
				9·65			·3799	13·9		·5472	18·75		·7382	23·6		·9291
		J	·2770	9·7			·3819	14·00		·5512	18·8		·7402	23·7		·9331
7·05			·2775	9·75			·3839				18·9		·7441	23·75		·9351
7·1			·2795	9·8			·3858	14·1		·5551	19·00		·7480	23·8		·9370
		K	·2810			W	·3860	14·2		·5591					15/16	·9375
	9/32		·2812	9·85			·3878	14·25		·5610		3/4	·7500	23·9		·9409
7·15			·2815	9·9			·3898		9/16	·5625	19·1		·7520	24·00		·9449
7·2			·2835		25/64		·3906	14·3		·5630	19·2		·7559			
7·25			·2854	9·95			·3917	14·4		·5669	19·25		·7579	24·1		·9488
7·3			·2874	10·00			·3937	14·5		·5709	19·3		·7598	24·2		·9528
7·35			·2894					14·6		·5748	19·4		·7638		61/64	·9531
		L	·2900	10·05			·3957		37/64	·5781		49/64	·7656	24·25		·9547
7·4			·2913			X	·3970	14·7		·5787	19·5		·7677	24·3		·9567
7·45			·2933	10·1			·3976	14·75		·5807	19·6		·7717	24·4		·9606
		M	·2950	10·15			·3996	14·8		·5827	19·7		·7756	24·5		·9646
7·5			·2953	10·2			·4016	14·9		·5866	19·75		·7776	24·6		·9685
	19/64		·2969	10·25			·4035	15·00		·5905	19·8		·7795		31/32	·9687
7·55			·2972			Y	·4040					25/32	·7812	24·7		·9724
7·6			·2992	10·3			·4055		19/32	·5937	19·9		·7835	24·75		·9744
7·65			·3012		13/32		·4062	15·1		·5945	20·00		·7874	24·8		·9764
		N	·3020	10·35			·4075	15·2		·5984				24·9		·9803
7·7			·3031	10·4			·4094	15·25		·6004	20·1		·7913	25·00		·9843
7·75			·3051	10·45			·4114	15·3		·6024	20·2		·7953			
7·8			·3071			Z	·4130	15·4		·6063		51/64	·7969		63/64	·9844
7·85			·3090	10·5			·4134		39/64	·6094	20·25		·7973	25·1		·9882
7·9			·3110	10·6			·4173	15·5		·6102	20·3		·7992	25·2		·9921
	5/16		·3125	10·7			·4213	15·6		·6142	20·4		·8032	25·25		·9941
7·95			·3130		27/64		·4219	15·7		·6181	20·5		·8071	25·3		·9961
														25·4	1	1·000

HACK SAW & TURNING TOOL DATA

Cutting Speeds for Turning and Boring Tools

Feet per Minute / Diameter Inches	20	25	30	35	40	45	50
	Revolutions per Minute						
1/4	611	764	917	1070	1222	1375	1528
3/8	306	382	458	535	611	688	764
1/2	204	255	306	357	408	458	509
5/8	153	191	229	268	306	344	382
3/4	123	153	184	214	245	276	306
7/8	102	127	153	178	203	229	254
1	87·3	109	131	153	175	196	219
1 1/8	76·4	95·5	115	134	153	172	191
1 1/4	68·0	85·0	102	119	136	153	170
1 3/8	61·2	76·3	91·8	107	123	137	153
1 1/2	55·6	69·5	83·3	97·2	111	125	139
1 5/8	50·8	63·7	76·3	89·2	102	115	127
1 3/4	47·0	58·8	70·5	82·2	93·9	105·7	117
1 7/8	43·6	54·5	65·5	76·4	87·3	98·2	109
2	40·7	50·9	61·1	71·3	81·5	91·9	102
2 1/4	38·2	47·8	57·3	66·9	76·4	86·0	95·5
2 1/2	34·0	42·4	51·0	59·4	68·0	76·2	85·0
2 3/4	30·6	38·2	45·8	53·5	61·2	68·8	76·3
3	27·8	34·7	41·7	48·6	55·6	62·5	69·5
3 1/2	25·5	31·8	38·2	44·6	51·0	57·3	63·7
4	21·8	27·3	32·7	38·2	43·6	49·1	54·5
4 1/2	19·1	23·9	28·7	33·4	38·2	43·0	47·8
5	16·9	21·2	25·4	29·6	34·0	38·1	42·4
5 1/2	15·3	19·1	22·9	26·7	30·6	34·4	38·2
6	13·9	17·4	20·8	24·3	27·8	31·3	34·7
6 1/2	12·7	15·9	19·1	22·3	25·5	28·7	31·8
7	11·7	14·7	17·6	20·6	23·5	26·4	29·4
8	10·9	13·6	16·4	19·1	21·8	24·6	27·3
9	9·6	11·9	14·3	16·7	19·2	21·1	23·9
	8·5	10·6	12·7	14·9	17·0	19·1	21·2

Feet per Minute / Diameter Inches	20	25	30	35	40	45	50
	Revolutions per Minute						
10	7·6	9·6	11·5	13·4	15·3	17·2	19·1
11	6·9	8·7	10·4	12·2	13·9	15·6	17·4
12	6·4	8·0	9·6	11·1	12·7	14·3	15·9
13	5·9	7·3	8·8	10·3	11·8	13·2	14·7
14	5·5	6·8	8·1	9·6	10·9	12·3	13·6
15	5·1	6·4	7·6	8·9	10·2	11·5	12·7
16	4·8	6·0	7·2	8·4	9·6	10·7	11·9
17	4·5	5·6	6·7	7·9	9·0	10·1	11·2
18	4·2	5·3	6·4	7·4	8·5	9·6	10·6
19	4·0	5·0	6·0	7·0	8·0	9·1	10·1
20	3·8	4·8	5·7	6·7	7·6	8·6	9·6
21	3·6	4·5	5·5	6·4	7·3	8·1	9·1
22	3·5	4·3	5·2	6·1	6·9	7·8	8·7
23	3·3	4·1	5·0	5·8	6·6	7·5	8·3
24	3·2	4·0	4·8	5·6	6·4	7·2	8·0
25	3·1	3·8	4·6	5·3	6·1	6·9	7·6
26	2·9	3·7	4·4	5·1	5·9	6·6	7·3
27	2·8	3·5	4·2	5·0	5·7	6·4	7·1
28	2·7	3·4	4·1	4·8	5·5	6·1	6·8
29	2·6	3·3	4·0	4·6	5·3	5·9	6·6
30	2·5	3·2	3·8	4·5	5·1	5·7	6·4
31	2·4	3·0	3·7	4·3	4·9	5·5	6·1
32	2·4	3·0	3·6	4·2	4·8	5·4	5·9
33	2·3	2·8	3·5	4·0	4·6	5·2	5·8
34	2·2	2·8	3·3	3·9	4·5	5·0	5·6
35	2·1	2·8	3·2	3·8	4·3	4·9	5·4
36	2·1	2·6	3·2	3·7	4·2	4·8	5·3

Revolutions for other speeds can be formed by adding or multiplying values in the different columns. Thus, to get the revolutions for 70 feet, add 50 and 20 or 30 and 40 or Multiply 35 by 2.

Data Relating to Blu-Mol Hack Saw Blades

HAND BLADES

MATERIAL TO CUT	SPEED (Strokes per min.)	NO. OF TEETH per Inch ·025—23 Gauge
Thin Tubing, Electric Casings, Thin Sheet Metals.	Fast 90	32
Medium Tubing, Sheet Metals, Small Sections and Cold Rolled Steels up to ¼" diam.	Fast 90	24
Drill Rod, Small Sections, Tool Alloy and High Speed Steels.	Medium 70	24
Nickel, Stainless Steel, Nickel Chromium Alloys.	Slow 50	14 and 18
Tool Steel, Alloy Steel, High Speed Steel, Cast Iron	Medium 70	18
Iron Pipe, Light Angle Iron, Small Sections and Cold Rolled Steels ¼" to ¾" diam.	Fast 90	18
Brass, Copper, Aluminium and Cold Rolled Steels, Large Sections	Fast 90	14

MACHINE BLADES

Material to be Cut	Strokes per Minute	SIZE OF SAW TO USE Light Power			SIZE OF SAW TO USE Medium Power			SIZE OF SAW TO USE Heavy Power		
		Width Ins.	Gauge	Teeth	Width Ins.	Gauge	Teeth	Width Ins.	Gauge	Teeth
Brass, Copper and Aluminium	135	⅝	·032	18	1	·065	6	1¼, 1½, 2	·065 ·072	4
Steel Tubing, Light	125	⅝	·032	18	1	·049	14	1¼, 1½	·065	10
Angle Iron ... ... Cast Iron	90	1	·049	14	1	·065	10	1¼, 1½, 2	·065 ·072	6 & 10
Heavy Angles, Iron Pipe	125	1	·049	14	1	·065	10	1½, 1¾	·065	10
High Speed Alloy and Tool Steels	90	⅝	·032	18	1	·065	10	1¼, 1½, 2	·065 ·072	6
Stainless Steel	50	⅝	·032	18	1	·065	6	1¼, 1½, 2	·065 ·072	4 & 6
Cold Rolled and Machinery Steels ...	125	⅝	·032	18	1	·065	6	1¼, 1½, 2	·065 ·072	4

Grinding Wheel Speeds

HIGH SPEED TABLE

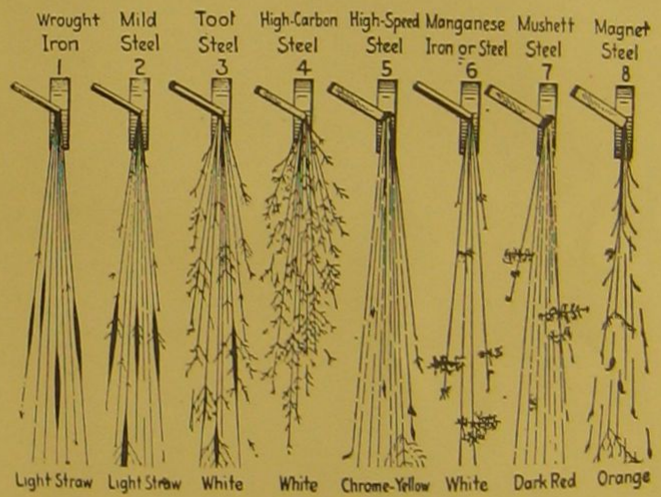
Diameter of Wheels		7,000 S.F.P.M.	8,000 S.F.P.M.	9,000 S.F.P.M.	10,000 S.F.P.M.
Ins.	m/m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
1	25·4	26,738	30,558	34,377	38,197
2	50·8	13,369	15,279	17,189	19,098
3	76·2	8,913	10,186	11,459	12,732
4	101·6	6,684	7,639	8,594	9,549
5	127	5,347	6,111	6,875	7,639
6	152	4,456	5,093	5,729	6,366
7	178	3,820	4,365	4,911	5,457
8	203	3,342	3,820	4,297	4,775
10	254	2,674	3,056	3,439	3,820
12	305	2,228	2,546	2,865	3,183
14	356	1,910	2,183	2,455	2,728
16	406	1,671	1,910	2,148	2,387
18	457	1,485	1,698	1,910	2,122
20	508	1,337	1,528	1,719	1,910
22	559	1,215	1,389	1,563	1,736
24	609	1,114	1,273	1,432	1,591
26	660	1,028	1,175	1,322	1,469
28	711	955	1,091	1,228	1,364
30	762	891	1,018	1,146	1,273
32	813	835	955	1,074	1,194
34	863	786	899	1,101	1,123
36	914	743	849	955	1,061

LOW SPEED TABLE

Diameter of Wheels		4,000 S.F.P.M.	5,000 S.F.P.M.	6,000 S.F.P.M.	6,500 S.F.P.M.
Ins.	m/m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
1	25·4	15,279	19,098	22,918	24,828
2	50·8	7,639	9,549	11,459	12,414
3	76·2	5,093	6,366	7,639	8,276
4	101·6	3,820	4,775	5,729	6,207
5	127	3,056	3,820	4,584	4,966
6	152	2,546	3,183	3,820	4,138
7	178	2,183	2,728	3,274	3,547
8	203	1,910	2,387	2,865	3,103
10	254	1,528	1,910	2,292	2,483
12	305	1,273	1,591	1,910	2,069
14	356	1,091	1,364	1,637	1,773
16	406	955	1,194	1,432	1,552
18	457	849	1,061	1,273	1,379
20	508	764	955	1,146	1,241
22	559	694	868	1,042	1,128
24	609	637	796	955	1,034
26	660	588	734	881	955
28	711	546	682	818	887
30	762	509	637	764	828
32	813	477	597	716	776
34	863	449	562	674	730
36	914	424	530	637	690

The Spark Method of Determining Grades of Iron and Steel

The method of determining the kind of ferrous material, illustrated here, has proved very successful as a practical shop test. The illustrations and notes make further explanations unnecessary. The material should touch the wheel lightly and the spark be carefully watched.



Lubricants for Cutting Tools

Material	Drilling	Reaming	Milling	Turning	Tapping & Die Threading	Material	Drilling	Reaming	Milling	Turning	Tapping & Die Threading
Mild Steel or Machinery Steel	Soluble Oil or good Cutting Compound	Lard Oil	Soluble Oil	Soluble Oil	Soluble Oil or Lard Oil	Aluminium	Soda Water or Lard Oil and Kerosene	Lard Oil	Soluble Oil or Dry	Soluble Oil	Soluble Oil or Lard Oil
Hard Tool Steel, Alloy Steel, Forgings, &c.	Soda Water, Turpentine, Soluble Oil or Lard Oil	Lard Oil	Soluble Oil	Soluble Oil or Lard Oil	Sulphur Base or Lard Oil	Malleable Iron Castings, &c.	Soluble Oil	Soluble Oil	Soluble Oil	Soluble Oil	Soluble Oil
Brass or Phosphor Bronze	Soluble Oil or Lard Oil or Dry	Soluble Oil or Dry	Soluble Oil or Dry	Soluble Oil	Soluble Oil or Lard Oil	Monel Metal	Lard Oil	Lard Oil	Soluble Oil	Soluble Oil	Lard Oil
Copper	Soluble Oil	Soluble Oil	Soluble Oil or Dry	Soluble Oil	Soluble Oil or Lard Oil	Cast Iron	Dry If possible keep Drill cooled with Jet of Compressed Air.				Lard Oil

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1, 3	Cu
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7	Par
7	"Pr
8	
8	
8	
9	Bac
9	Cus
9	Par
9	Brit
10	"Cu
11–13	Elec
14, 15	"Ec
16, 17	"Pra

COMET Parallel and Taper Shank Adjustable Reamers

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